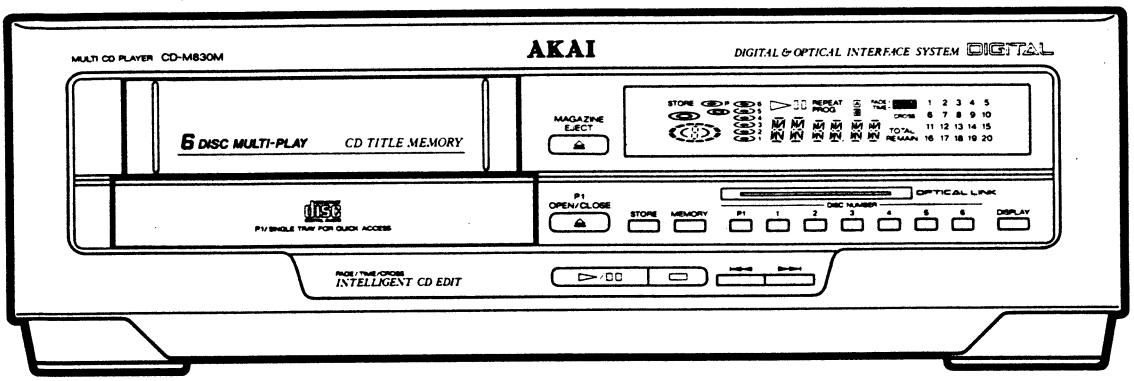
Tel-06103/4070

# AKAI SERVICE MANUAL




COMPACT disc DIGITAL AUDIO

## MULTI COMPACT DISC PLAYER

## MODEL CD-M830M

## SPECIFICATIONS

| | |
|---|---|
| Type | 7 disk auto changer |
| Pick-up system | 3 beam laser pick-up |
| Error correction system | Cross interleave reed solomon |
| Number of channels | 2 channel stereo |
| Wow & flutter | Less than measurable limits |
| Optical output level | – 22 dBs / 660 nm |
| Power requirements | Supplied from amplifier (model AX-M430 / AM-M630 / AM-M830) |
| Dimentions | 360 (W) X 117 (H) X 315 (D) mm |
| Weights | 3.8 kg |

**Standard accessories**

| | |
|---|---|
| Optical cable | X1 |
| Disc magazine (MCD-12) | X1 |
| Operator's manual | X1 |

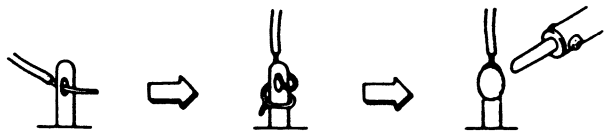
* For improvement purposes, specifications and design are subject to change without notice.

0 dBs = 0.775 V

# ★SAFETY INSTRUCTIONS

## PRECAUTIONS DURING SERVICING

1. Parts indentified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15 µF capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metalparts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

## MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.
Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

# ★INFORMATION

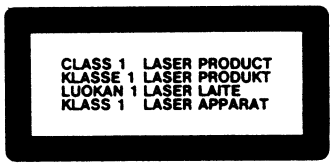
## SYMBOLS FOR PRIMARY DESTINATION

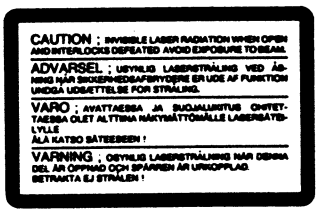
Primary destination of units are indicated with the following alphabet.

| Symbols | Principal Destinations |
|---|---|
| [B] | UK |
| [E] | Europe (except UK) |
| [S] | Australia |
| [V] | Germany |
| [U] | Universal Area |
| [Y*] | Custom version |

## CLASS 1 LASER PRODUCT

This product contains a low power laser device.
To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product.
Refer any servicing to qualified personal.
Use actual size stickers.

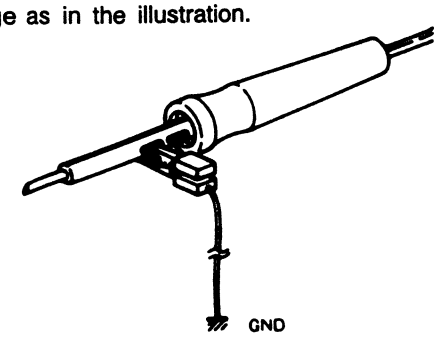



## PRECAUTIONS IN REPAIRING

When repairing or adjusing the unit, pleae note the following points.

1. Do not put excessiv pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair or adjustment, make sure that there are no metal obiects in the narrow gap between the P.C.board or the mecha parts and the base.
3. The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing.
   While soldering, please take the precautions against leakage as in the illustration.




4. Do not loosen any screws in the pick-up block.
   When handing the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
5. Keep safety for hazardous invisible Laser Radiation, DO NOT watch the
   Laser Beam (Objective lens) directly.
6. Models for the some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below.
   Read it carefully for your safety, when repairing or adjusting the unit.

## PRECAUTIONS BEFORE/AFTER REPAIRING THE UNIT

**[ABOUT THE POWER SUPPLY]**

Power supply and power control data for the CD-M830M are supplied from the amplifier and tuner. Therefore, when repair of the CD-M830M is necessary, repair should be made together with the amplifier and tuner.
To repair the CD-M830M without the tuner, ripair it together with the amplifier, using the following procedure.

*** When amplifier is AM-M630/AM-M830**

1) While pressing the ▷▷ and ◁◁ button of the CD-M830M, connect the AC power cord of the amplifier to the AC power outlet.
2) While pressing the G.E.REC button, press the POWER button of the amplifier to turn the power of the AM-M630/AM-M830 and CD-M830M on.
3) To turn off the power of the amplifier and CD-M830M, the AC cord must be disconnected.

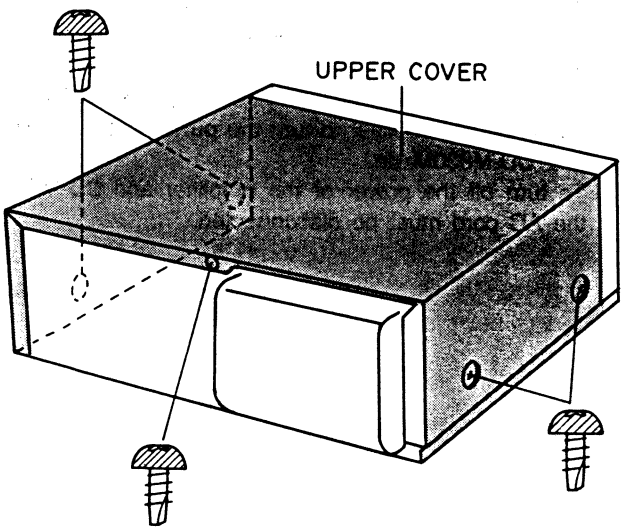
*** When amplifier is AX-M430**

1) While pressing the ▷▷ and ◁◁ button of the CD-M830M, connect the AC power cord of the amplifier to the AC power outlet.
2) While pressing the PLAY (▷) button, press the POWER button of the amplifier to turn the power of the AX-M430 and CD-M830M on.
3) To turn off the power of the amplifier and CD-M830M, the AC cord must be disconnected.

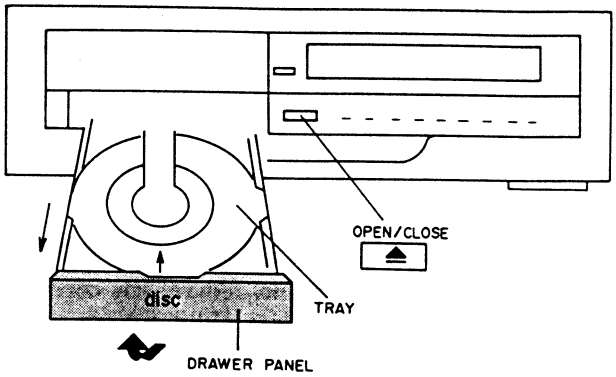
# I. DISASSEMBLY

In case of trouble, etc., necessitating dismanting, please dismantle in the order shown in the illustrations.
Reassemble in reverse order

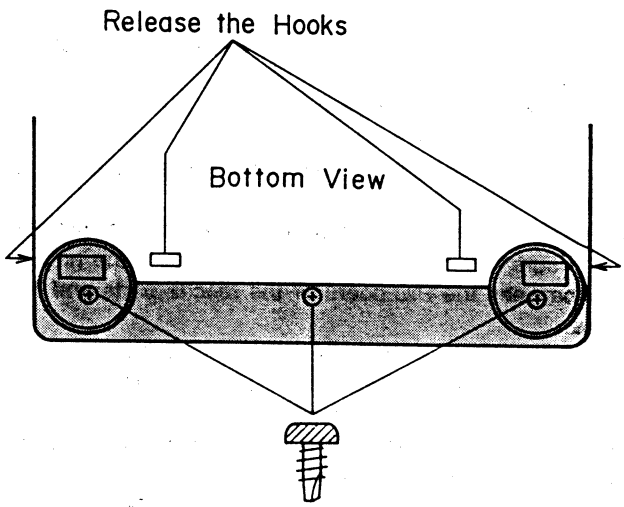
1. Removal of UPPER COVER




2. Removal of FRONT PANEL




1) Turn the power on.
2) Press the OPEN/CLOSE (⏏) button to open the disc drawer.
3) While pressing the tray in a little, pull the middle section of the drawer panel forward and upward to remove it.
4) With the disc drawer in the open position, remove the FRONT PANEL retaining screws and remove the PANEL.
5) Press the OPEN/CLOSE (⏏) button to close the disc drawer.
6) Turn the power off.



# II. PRINCIPAL PARTS LOCATION

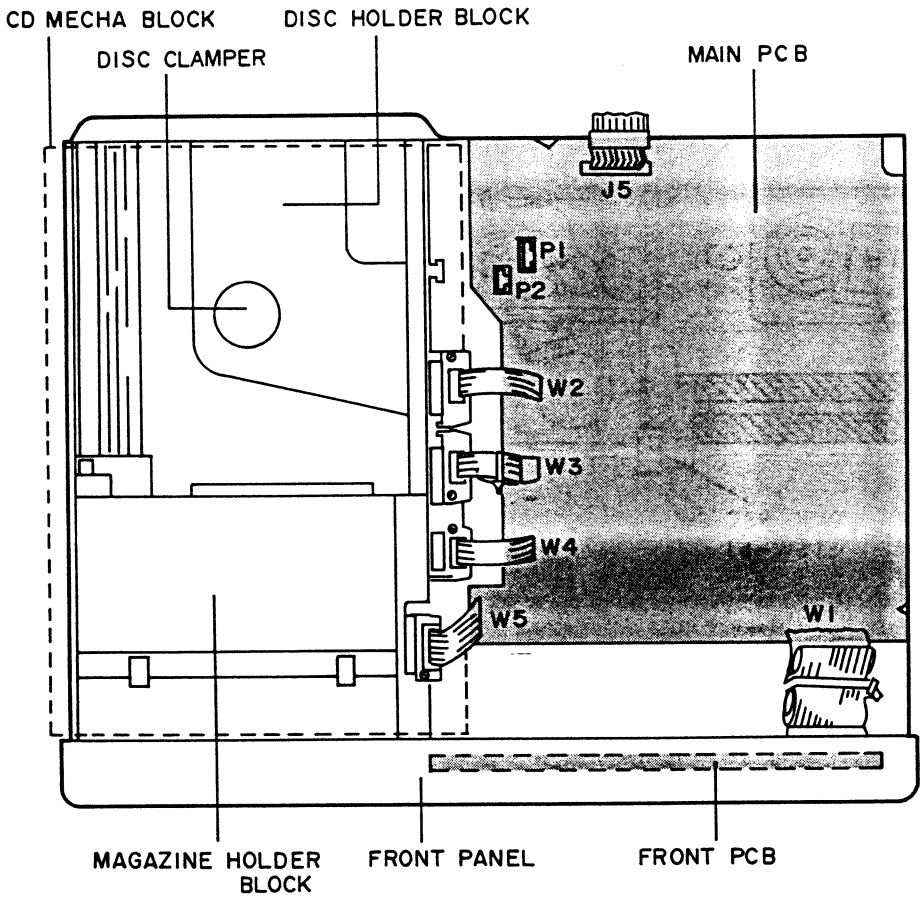



Fig.2-1 Top view

CD MECHA BLOCK

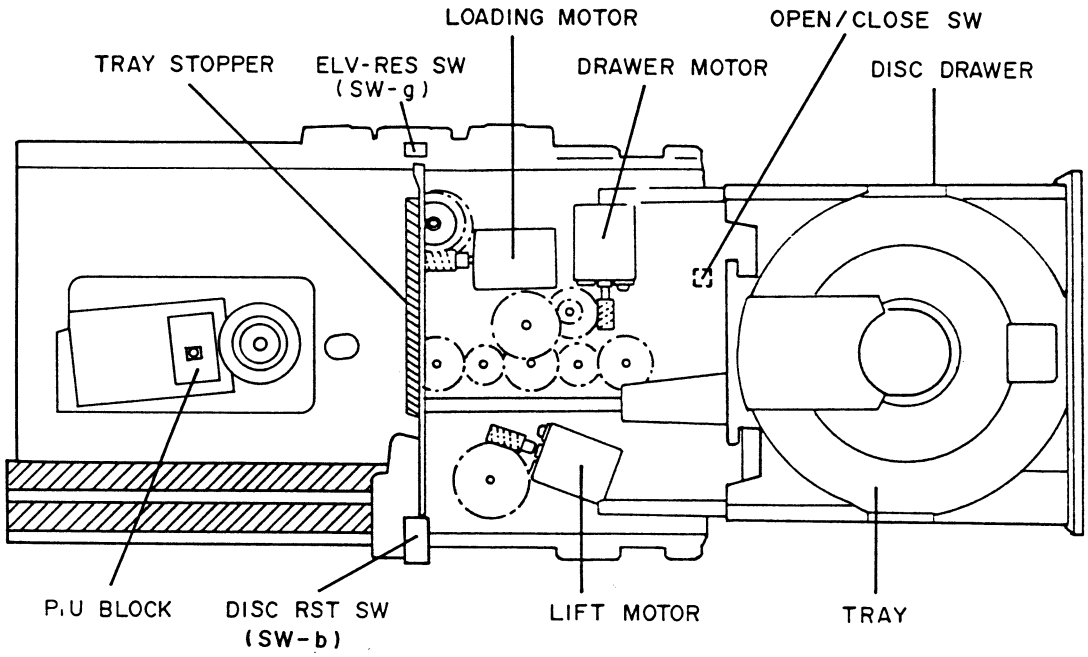



Fig.2-2 Top view

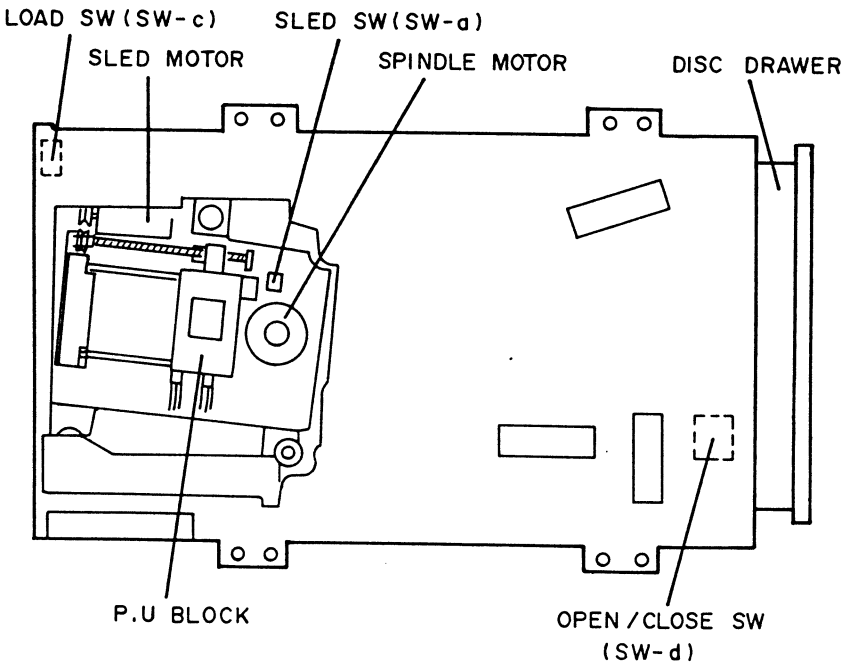
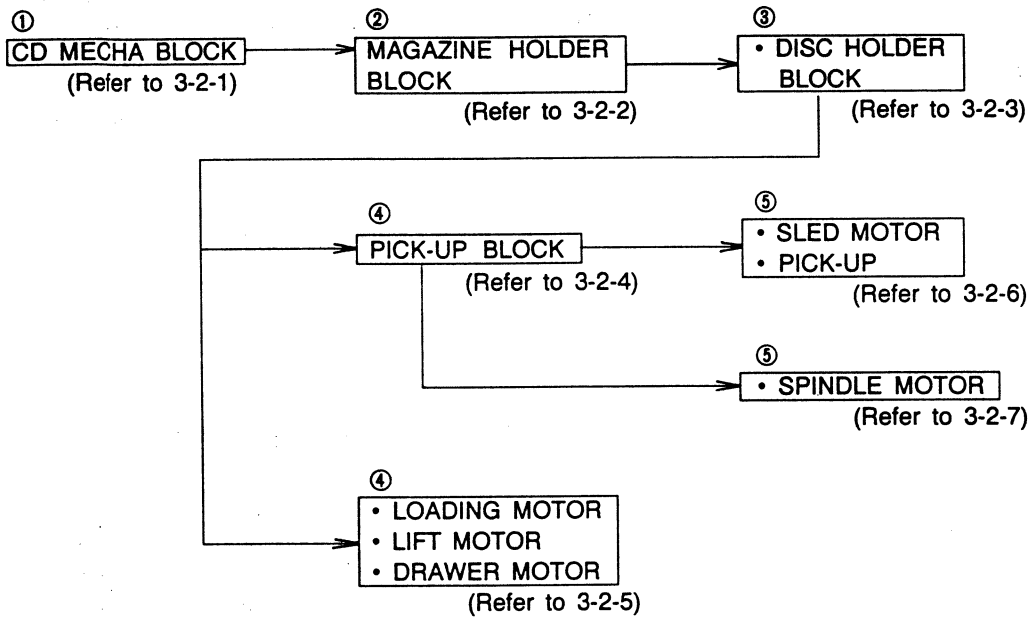



Fig.2-3 Bottom view

# III. REPLACEMENT OF PRINCIPAL COMPONENTS

## 3-1.DISMANTLING PROCEDURE OF THE COMPONENTS

• When replacement of mechanical parts is neccessary, replace the parts using the following procedure.




## 3-2.DISMANTLING METHOD OF EACH COMPONENT

### 3-2-1. HOW TO REMOVE THE CD MECHA BLOCK

1) Remove the P1 and P2 connectors on the MAIN PCB.
2) Remove the W2, W3, W4 and W5 connectors on the MECHA BLOCK.
3) Remove the mecha block retaining screws Ⓐ and Ⓑ.

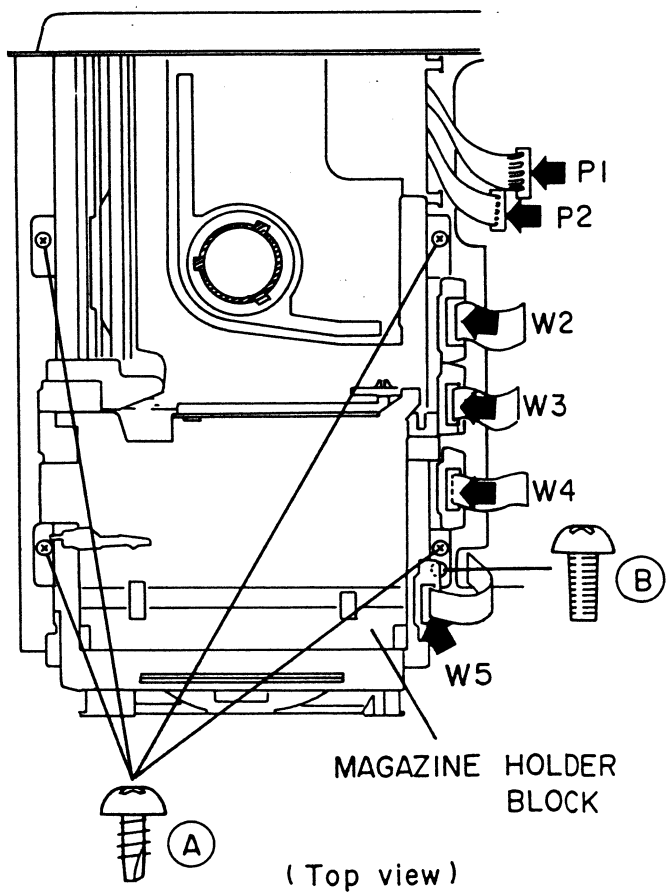



Fig.3-1

### 3-2-2. HOW TO REMOVE THE MAGAZINE HOLDER BLOCK

1) Remove the magazine holder block retaining screws Ⓒ.
2) Move the magazine holder block forward and disengage the 4 retaining tabs to remove it.
3) Remove the tray stopper.

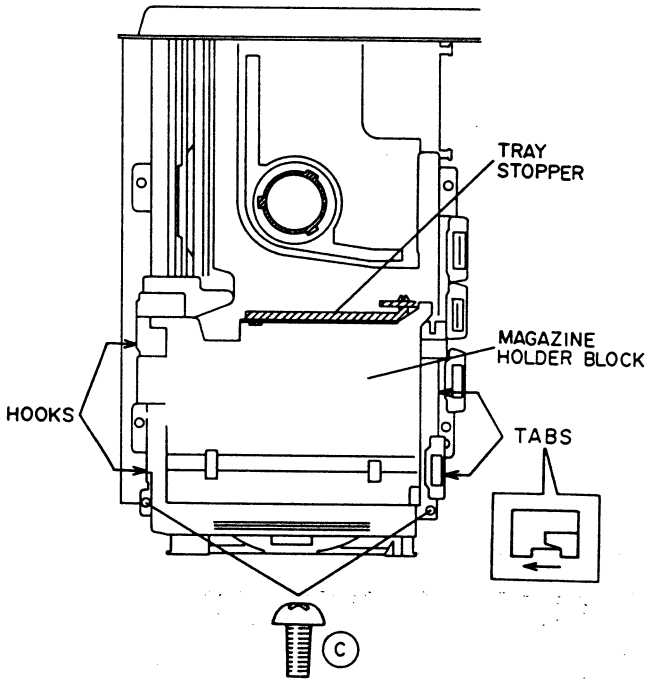



Fig 3-2

### 3-2-3. HOW TO REMOVE THE DISC HOLDER BLOCK

1) Remove the disc holder retaining screws Ⓓ and Ⓔ.
2) Disengage the disc holder's 4 retaining tabs to remove it.

**Caution**

* When tightening the screw Ⓔ, adjust the space between the clamper and mg holder bracket to 1.2 to 1.8 mm.
* If the screw Ⓔ is tightened too tightly, the clamper and disc holder will touch causing poor revolution.
* Paint lock the screw Ⓔ.

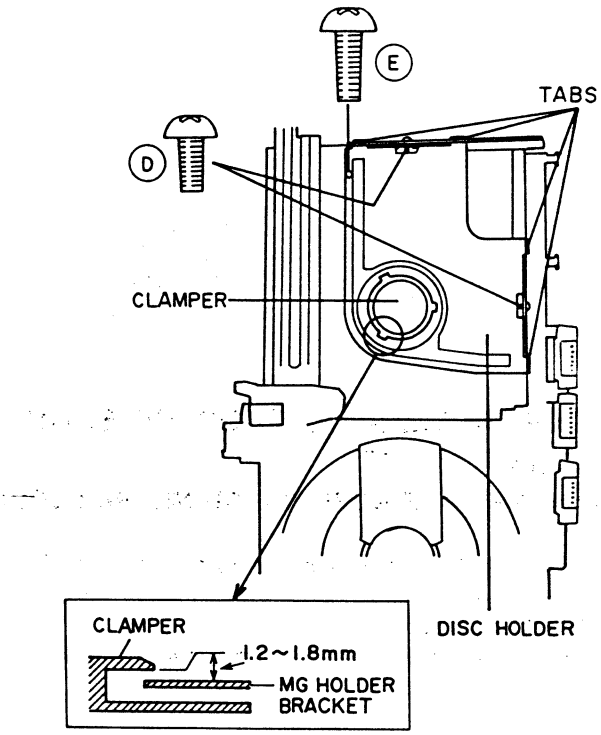



Fig 3-3

### 3-2-4. HOW TO REMOVE THE PICK-UP BLOCK

1) Turn the CD mecha block over.
2) Remove the wire protector.
3) Remove the pick-up block retaining screws Ⓕ and spring.
4) Remove the pick-up block from the CD mecha block.

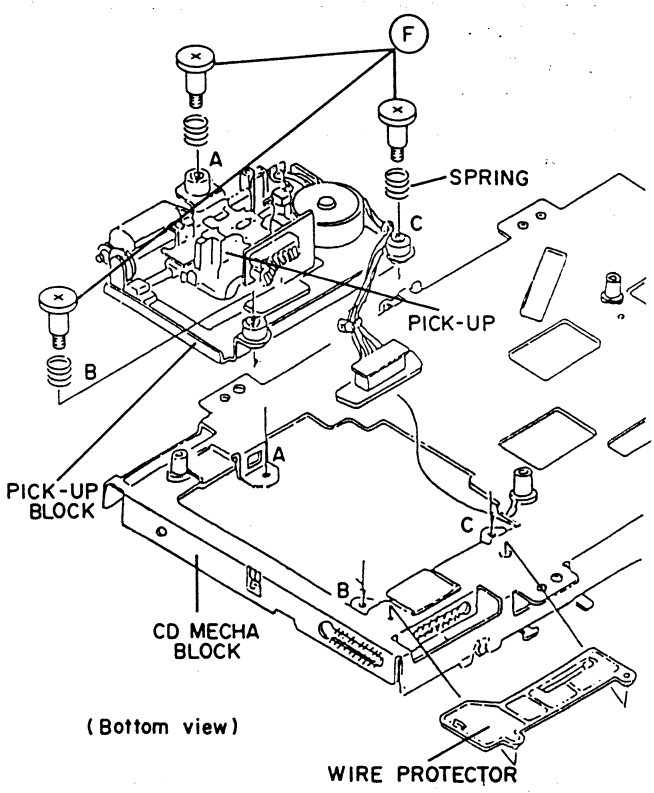



Fig.3-4

### 3-2-5. HOW TO REMOVE THE LOADING MOTOR, LIFT MOTOR AND DRAWER MOTOR

1) Turn the GEAR B (located in the disc drawer's middle hole) counterclocwise for 2 or 3 revolutions to move the drawer slightly forward and release the lock.
2) Use your hands to slowly pull out the disc drawer.
3) Remove the mounting screws of each motor.

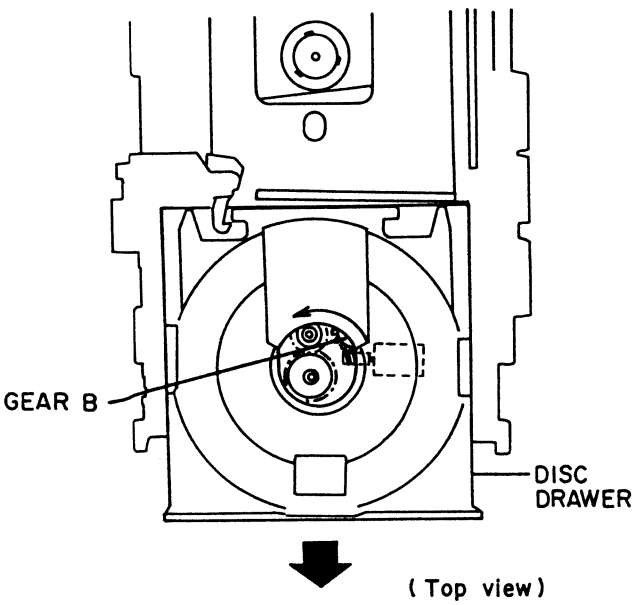



Fig.3-5

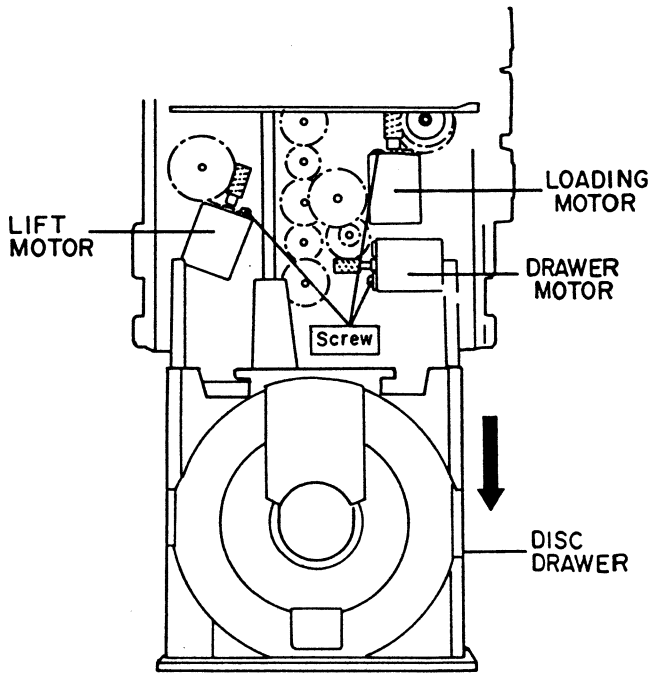



Fig.3-6

### 3-2-6. HOW TO REMOVE THE SLED MOTOR AND PICK-UP

**A) SLED MOTOR**

1) Remove the feed M belt.
2) Remove the SLED motor retaining screw Ⓖ.

**B) PICK-UP**

1) Remove the shaft base retaining screws Ⓗ.
2) Remove the P.U shaft and remove the pick-up.

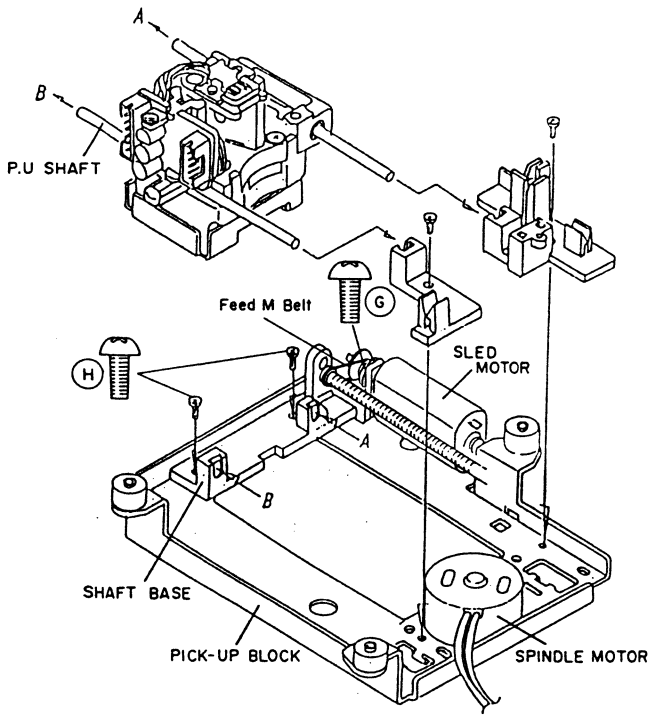



Fig. 3-7

### 3-2-7. HOW TO REMOVE THE SPINDLE MOTOR

1) Pull out the turntable from the spindle motor shaft.
2) Remove the SPINDLE motor retaining screws Ⓘ.

- Put the turntable on to the spindle motor shaft and adjust the turntable so that the height of the turntable from the chassis is 0.5 to 1.0 mm as shown in Fig 3-8.
- After adjustment, paint-lock the turntable to the spindle motor.

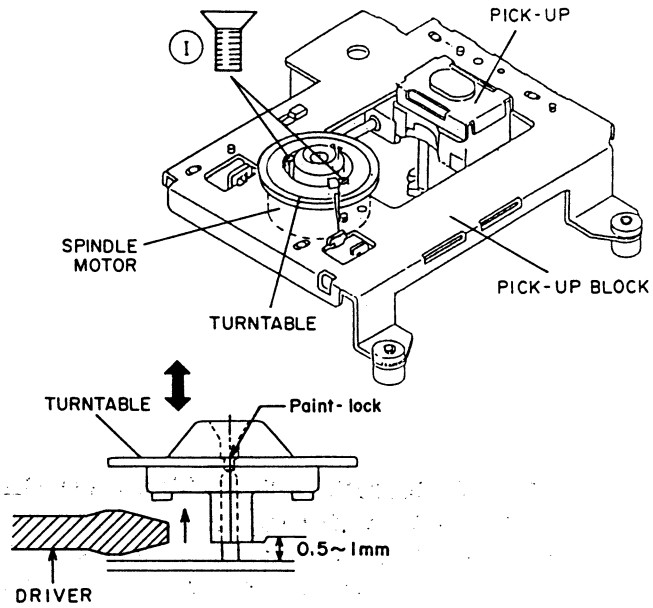



Fig.3-8

# IV. ELECTRICAL ADJUSTMENT

**[ABOUT THE TEST MODE]**

- This TEST mode is used for adjustment or checking.
- How to set engage the TEST mode.

**[When amplifier is AM-M830/AM-M630]**

1) Set the TEST DISC to the No.1 MAGAZINE PACK
2) While pressing the ▷/II and □ button of theCD-M830M, connect the AC power cord of the amplifier to the AC power outlet.
3) While pressing the G.E.REC button, press the POWER button of the amplifier to turn the power of the AM-M630/AM-M830 and CD-M830M on. FX TEST (initial TEST mode) will appear on the FLD of the CD-M830M.

**[When amplifier is AX-M430]**

1) Set the TEST DISC to the No.1 MAGAZINE PACK.
2) While pressing the ▷/II and □ button of the CD-M830M, connect the AC power cord of the amplifier to the AC power outlet.
3) While pressing the PLAY (▷) button, press the POWER button of the amplifier to turn the power of the AX-M430 and CD-M830M on.

- How to change the TEST mode number.
  Press the DISC NUMBER button (1 to 6) on the FRONT PANEL. When to return to the initial TEST mode condition, press the □ button.
- To cancel the TEST mode.

**[When amplifier is AM-M830/AM-M630]**

1) Turn off the power of the amplifier and CD-M830M by disconnecting the AC power cord.
2) While pressing the ▷/II and □ button of the CD-M830M, connect the AC power cord of the amplifier to the AC outlet.
3) While pressing the G.E.REC button, press the POWER button of the amplifier to turn the power of the AM-M630/AM-M830 and CD-M830M on.
4) The TEST mode is now cancelled.

**[When amplifier is AX-M430]**

1) Turn off the power of the amplifier and CD-M830M by cisconnecting the AC power cord.
2) While pressing the ▷/II and □ button of the CD-M830M, connect the AC power cord of the amplifier to the AC outlet.
3) While pressing the PLAY (▷) button, press the POWER button of the amplifier to turn the power of the AM-M630/AM-M830 and CD-M830M on.
4) The TEST mode is now cancelled.

- When the tuner is connected,turning power on and off will cancel the TEST mode.

| STEP | ADJUSTMENT |
|---|---|
| 1. Test disc | |
| 2. Mode or Test mode | |
| 3. Test point / ADJ parts | |
| 4. (•) Remark (※) Result | |

Test point　Adjustment

- TEST mode condition and DISPLAY

| TEST MODE | DISPLAY | |
|---|---|---|
| Initial condition | FX TEST | • Indicates unit is set into the TEST mode. |
| 1 or 2 | 01 01M12 | • Indicates end of FOCUS SEARCH. |
| 3 | 01 01M03 | • Set into the CLV-S mode. |
| 4 | 01 01M04 | • Tracking servo is on. |
| 5 | 21 21M05 | • Set into the CLV-S mode, tracking servo is on.<br>• After this, track NO. and total time become normal indication. (Playback Track NO.21) |
| 6 | 21 21M06 | • Same as normal playback mode. |

**5 FOCUS OFF-SET**

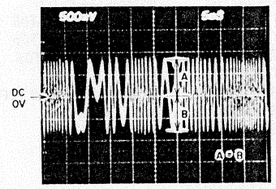
1. Test disc 5A (AT-751330)
2. Test mode 2 and 1
3. JW43 (FE) / VR 5
4. • Connect a digital DC voltmeter to JW43 (FE) and check voltage A in the test mode 2, then press STOP button and adjust voltage B so that the reading on the digital DC voltmeter is same as voltage A .

※A=B

**2 E-F BALANCE**

1. Test disc 5A (AT-751330)
2. Test mode 3
3. JW44 (TE)/ VR 2
4. • Connect an oscilloscope to JW44 (TE)

※A=B




**1 PLL**

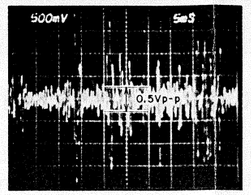
1. ——-
2. 10 seconds after power is on.
3. JW124(WFCK) / VR 1
4. • Connect a frequency counter to JW124 (WFCK).
   • Connect JW41 (EFM) to JW42 (GND) by jumper wire.

※7,350 ± 50 Hz

**4 FOCUS SERVO GAIN**

1. Test disc 5A (AT-751330)
2. Test mode 5
3. Pin ② (FCS) of connector P2 / VR 3
4. • Connect an oscilloscope to pin ② (FCS) of connector P2.

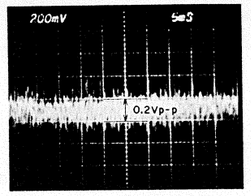
※0.5 Vp-p

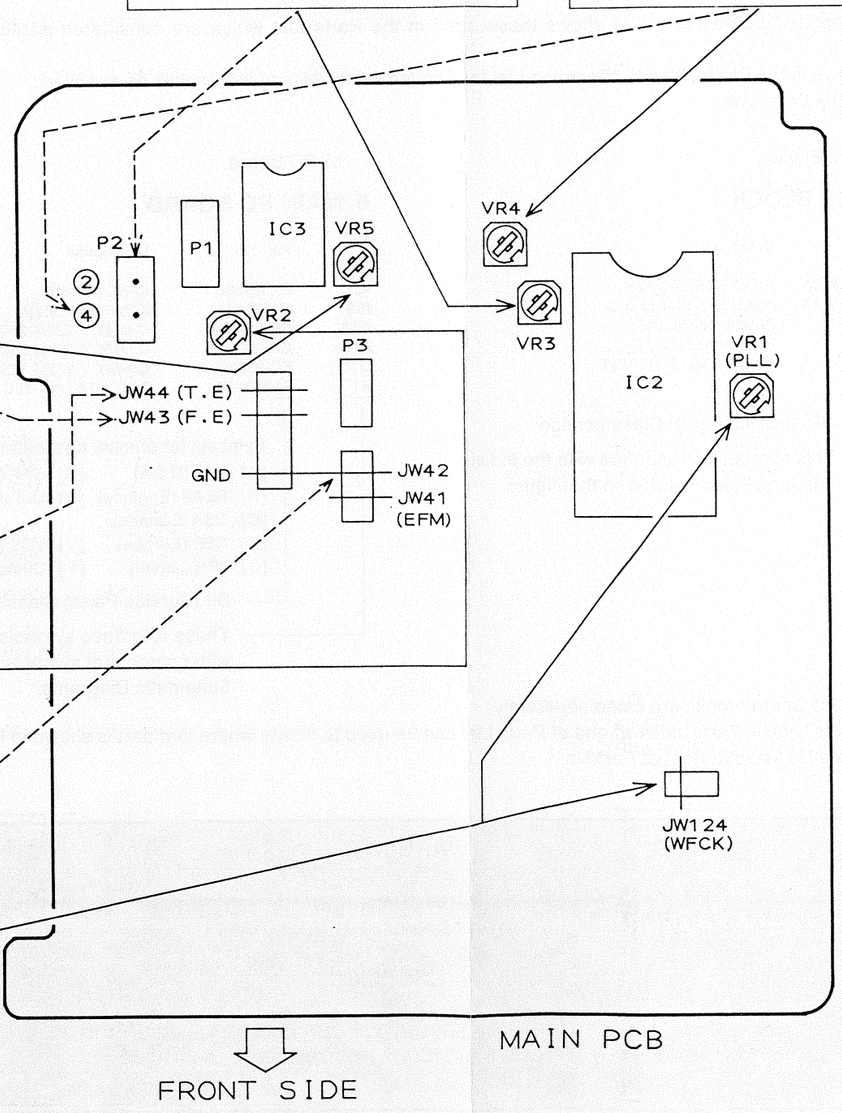



**3 TRACKING SERVO GAIN**

1. Test disc 5A (AT-751330)
2. Test mode 5
3. Pin ④ (TRK) of connector P2/ VR 4
4. • Connect an oscilloscope to pin ④ (TRK) of connector P2.

※0.2 Vp-p.



# V. PARTS LIST

**ATTENTION**

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of tne part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

## HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

### 2. HEAD BASE BLOCK

| Ref. No. | Part No. | Description |
|---|---|---|
| 1 | BH-T2023A320A | HEAD BASE BLOCK |
| 2 | HP-H2206A010A | HEAD R/P PR4-8FU C |
| 3 | ZS-477876 | PAN20×03STL CMT |
| 4 | ZS-536488 | BID20×08STL CMT |
| 5 | ZG-402895 | SP CS ANGLE ADJUST |

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

### 6. MAIN PC BOARD

| Ref. No. | Part No. | Description |
|---|---|---|
| IC1 | EI-324536 | IC HD14049BP |
| IC2 | EI-336801 | IC MB8841-564M |
| C1A | EC-338399 | C MMY V 223M 250AC [U,E,B,S] |
| C1B | EC-350949 | C MMY V 223M 250DC [J] |
| C1C | EC-338397 | C MMY V 223M 125AC [C,A] |
| X1 | EI-318384 | OSC X'TAL NC-18C |

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universal Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (Germany)
[J] : JPN (Japan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

**WARNING**

**⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.**

**AVERTISSEMENT**

**⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.**

### 1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

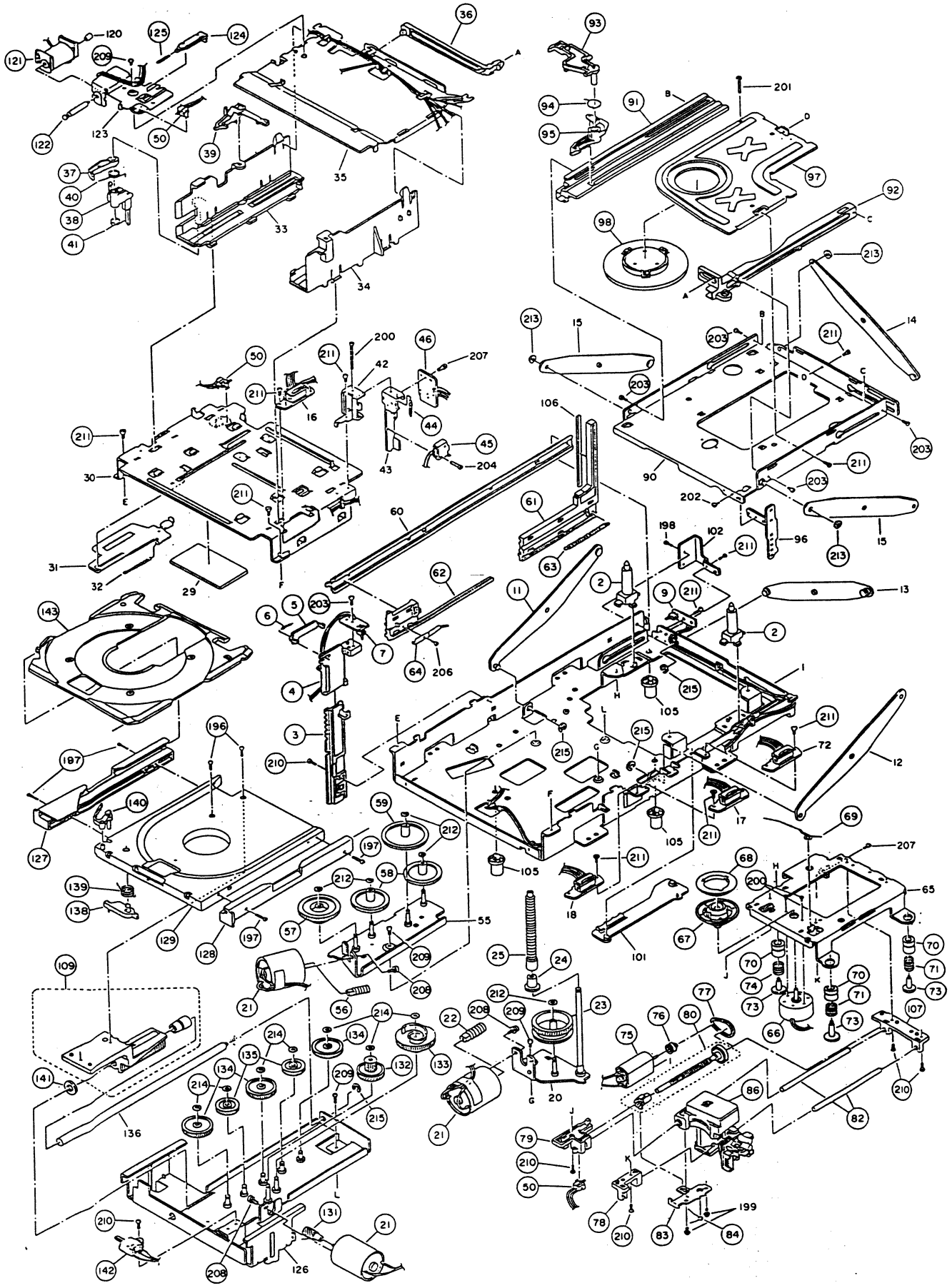
| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | BB-405228J | MECHA CD CHANGEER P2065 |
| 2 | BM-732748J | MOTOR FF-050SH |
| 3 | BM-732740J | MOTOR RF-300C-11440 |
| 4 | BM-374198 | MOTOR RF-370C15370 |
| 5 | BO-732758J | PICK UP TAOHS-KP1 |
| 6 | EC-391843J | C DOUBLE FYDOH 223Z 5.5DC |
| 7 | ED-394416J | D LED SLV-31VT3F RED |
| 8 | ED-307572 | D SILICON H 1SS131 |
| 9 | ED-511907 | D SILICON 1N4002 100/1.0A |
| 10 | ED-393759J | D ZENER H HZS6B1L F05 |
| 11 | ED-400171J | D ZENER H HZS6C2L F05 |
| 12 | ED-396063J | D ZENER H HZS7B1 |
| 13 | ED-387820J | D ZENER H HZS9A2L F05 |
| 14 | ED-400175J | D ZENER H HZS9B1L F05 |
| 15 | EH-405239J | COMP R RGLD14T 223J |
| 16 | EH-405240J | COMP R RGLE11X 472J |
| 17 | EI-389264J | IC BA6209N |
| 18 | EI-390112J | IC CXA1081S |
| 19 | EI-390120J | IC CXA1082BS |
| 20 | EI-403497J | IC CXD1167Q |
| 21 | EI-405231J | IC LC3664ASLL-12 |
| 22 | EI-400756J | IC NJM4558L-B |
| 23 | EI-405234J | IC S-8054ALR T05 |
| 24 | EI-405232J | IC UPD75116CW FX2CDS-1-172 |
| 25 | EI-405236J | IC UPD75268ACW FX2CD01-028 |
| 26 | EI-390149J | OSC CE CST4.23MGW 4.230MHZ |
| 27 | EI-381139J | OSC X'TAL HC-49/U 16934.400KHZ |
| 28 | EJ-394490J | SOCKET OPTICAL GP1F32T |
| 29 | EM-401047J | IND FL FIP10EM7R CHARACTER |
| 30 | ES-732713J | FR DETECTION ASSY |
| 31 | ES-732728J | SW ASSY (03 301) |
| 32 | ES-732786J | SW LEAF MCV0024MPDO |
| 33 | ES-732729J | SW PUSH SPPB31 |
| 34 | ES-732727J | SW SSCTL |
| 35 | ES-394427J | SW TACT SOR-133HS T05 |
| 36 | ET-369248 | TR DTA114YS |
| 37 | ET-371075 | TR DTA124XS |
| 38 | ET-360399 | TR DTC114TS |
| 39 | ET-354371 | TR DTC124ES |
| 40 | ET-373392 | TR DTC124XS |
| 41 | ET-353899 | TR 2SA1317 S,T,U |
| 42 | ET-394555J | TR 2SA1515 Q,R |
| 43 | ET-389807J | TR 2SB1009 Q,R |
| 44 | ET-394919J | TR 2SB1329 Q,R T05 |
| 45 | ET-400965J | TR 2SB1357 E,F T05 |
| 46 | ET-389808J | TR 2SB1425 E,U |
| 47 | ET-400218J | TR 2SC1740S R,S |
| 48 | ET-396486J | TR 2SC4038 Q,R T05 |
| 49 | ET-394917J | TR 2SD2005 Q,R T05 |
| 50 | ET-394916J | TR 2SD2037 E,F T05 |
| 51 | ET-396072J | TR 2SD2159 V,W |
| 52 | EW-394419J | WIRE ASSY P2059 12P |
| 53 | MB-732750J | BELT FEED M |
| 54 | ZG-732711J | SP SENSOR |

### 2. CD MECHANISM

| Ref.No. | Part No. | Description |
|---|---|---|
| 2 | MS-732707J | GUIDE BOSS |
| 3 | MS-732708J | TRAY SW GUIDE |
| 4 | MZ-732709J | TRAY SW BKT |
| 5 | ML-732710J | SENSOR LEVER |
| 6 | ZG-732711J | SP SENSOR |
| 7 | ES-732712J | SW ASSY (01 301) |
| 9 | ES-732713J | FR DETECTION ASSY |
| 21 | BM-374198 | MOTOR RF-370C15370 |
| 22 | MZ-732714J | E GEAR (A) |
| 23 | MZ-732715J | E GEAR (B) |
| 24 | MZ-732716J | E GEAR (C1) |
| 25 | MZ-732788J | E GEAR (C2) |
| 36 | ML-732720J | TRAY STOPPER |
| 37 | ML-732721J | RELEASE LEVER (1) |
| 38 | ML-732722J | RELEASE LEVER (2) |
| 39 | ML-732723J | LOCK LEVER |
| 40 | ZG-732724J | SP RELEASE LEVER (04-31) |
| 41 | ZG-732725J | SP RELEASE LEVER (03-22) |
| 44 | ZG-732726J | SP SW HOLDER |
| 45 | ES-732727J | SW SSCTL |
| 46 | ES-732728J | SW ASSY (03 301) |
| 50 | ES-732729J | SW PUSH SPPB31 |
| 56 | MZ-732730J | FE GEAR (A) |
| 57 | MZ-732731J | FE GEAR (B) |
| 58 | MZ-732732J | FE GEAR (D) |
| 59 | MZ-732734J | FE GEAR (E) |
| 61 | ML-732736J | HOOK SLIDE LEVER |
| 62 | MZ-732737J | RACK GEAR |
| 63 | ZG-732738J | SP RACK GEAR |
| 64 | ML-732739J | LOCK SP PLATE |
| 66 | BM-732740J | MOTOR RF-300C-11440 |
| 67 | MZ-732741J | TURN TABLE |
| 68 | MZ-732742J | TT PLATE |
| 69 | ZG-732743J | SP CONTROLER |
| 70 | MB-732744J | FLOATING RUBBER |
| 71 | ZG-732745J | SP FLOTING (B) |
| 73 | ZS-732746J | SCREW FLOATING |
| 74 | ZG-732747J | SP FLOTING |
| 75 | BM-732748J | MOTOR FF-050SH |
| 76 | MR-732749J | MOTOR PULLEY |
| 77 | MB-732750J | BELT FEED M |
| 78 | MZ-732751J | SHAFT HOLDER |
| 79 | MZ-732752J | SHAFT BASE (A) |
| 80 | MZ-732753J | FEED ASSY |
| 82 | MS-732754J | PU SHAFT |
| 83 | MZ-732755J | FEED NUT SUPPORT |
| 84 | ZG-732756J | SP FEED NUT |
| 86 | BO-732758J | PICK UP TAOHS-KP1 |
| 91 | ML-732759J | RAIL (L) |
| 92 | ML-732760J | RAIL (R) |
| 93 | ML-732761J | HOOK LEVER |
| 94 | ZG-732762J | SP HOOK |
| 95 | ML-732763J | HOOK |
| 96 | ML-732765J | DETECT SW PLATE (C) |
| 98 | MZ-732766J | CLAMPER ASSY |
| 107 | MZ-732768J | SHAFT BASE (B) |
| 109 | MZ-732769J | P-BASE GUIDE ASSY |
| 121 | EP-732770J | COIL ASSY |
| 122 | MS-732771J | PLUNGER (A) |
| 124 | ML-732772J | SLIDE SW LEVER |
| 125 | ZG-732773J | SP SLIDE LEVER |
| 127 | ML-732774J | P RAIL (L) |
| 128 | ML-732775J | P RAIL (R) |
| 129 | MZ-732776J | P RAIL BASE |
| 131 | MZ-732777J | P GEAR (A) |
| 132 | MZ-732778J | P GEAR (B) |
| 133 | MZ-732779J | P GEAR (C) |
| 134 | MZ-732780J | P GEAR (D) |
| 135 | MZ-732781J | P GEAR (E) |
| 138 | ML-732782J | STOPPER |
| 139 | ZG-732783J | SP STOPPER |
| 140 | ML-732784J | P LOCK LEVER |
| 141 | MB-732785J | RUBBER |
| 142 | ES-732786J | SW LEAF MCV0024MPDO |
| 143 | MZ-732787J | P1 TRAY (8) E26609-002 |
| 196 | ZS-283353 | T2BID20X08STL CMT |
| 197 | ZS-377928 | PT BID20X08STL CMT |
| 200 | ZS-390436J | PAN17X025STL BZN PS3 |
| 203 | ZS-726033J | T2BID20X06 |
| 208 | ZS-417216 | PAN30X04STL CMT |
| 209 | ZS-477876 | PAN20X03STL CMT |
| 210 | ZS-608095 | PAN20X05STL CMT |
| 211 | ZS-460440 | PAN20X04STL CMT |
| 212 | ZW-712292 | PW21X050X040 PLS |
| 213 | ZW-324417 | PW31X060X050PSL |
| 214 | ZW-344643 | PW26X070X025PSL |
| 215 | ZW-270101 | RING E 300SUP CMT |

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## CD MECHANISM



## 3. P.C BOARD BLOCK

| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | BA-P2065T020A | ML PC (#) MAIN BLK CD-M830M/ML |

ML PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.
- MAIN P.C BOARD
- OPERATION P.C BOARD

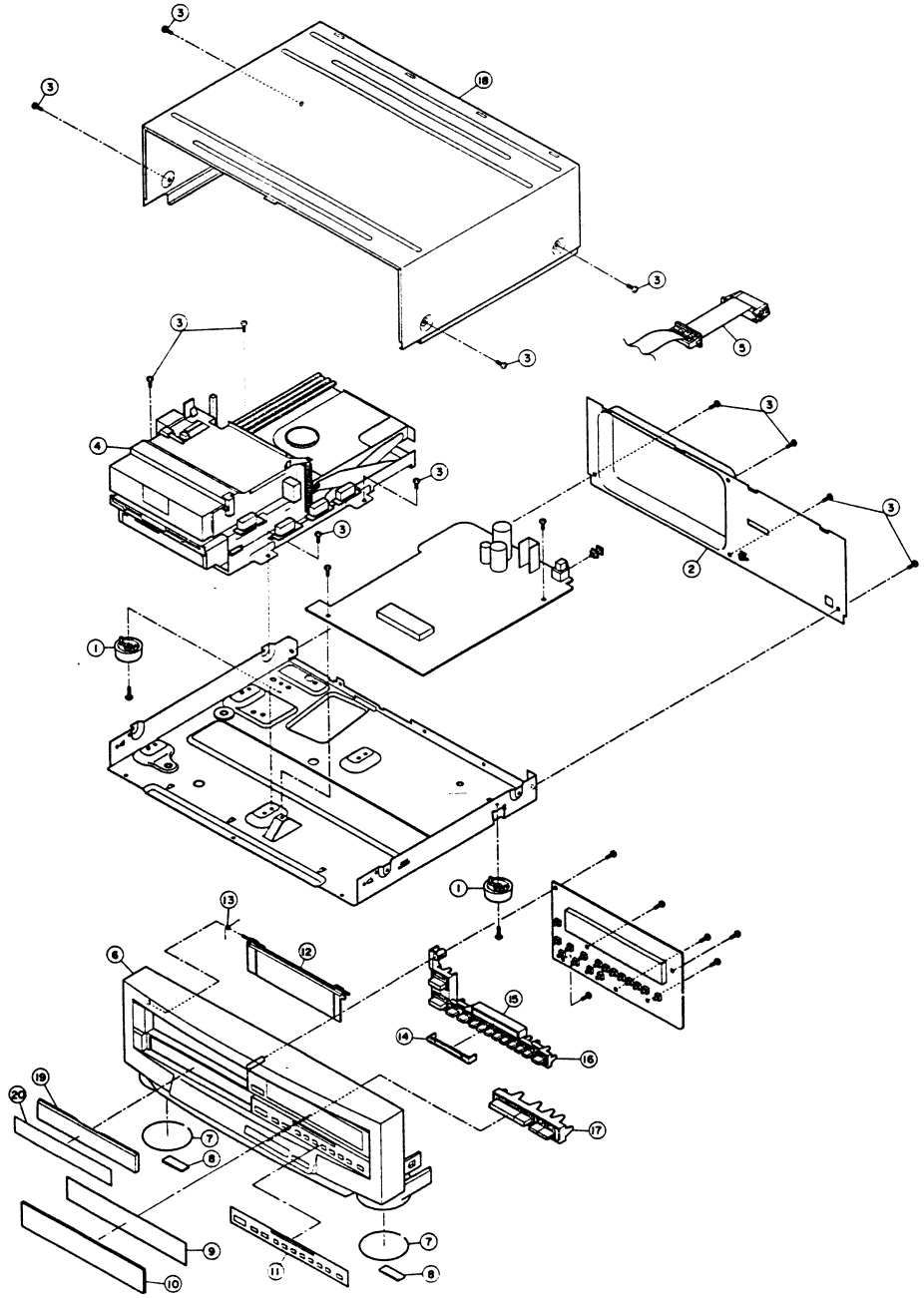
## 4. MAIN P.C BOARD

| Ref.No. | Part No. | Description |
|---|---|---|
| C66 | EC-391843J | C DOUBLE FYDOH 223Z 5.5DC |
| D1 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D2 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D3 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D4 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D5 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D6 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D7 | ED-387820J | D ZENER H HZS9A2L F05 |
| D8 | ED-393759J | D ZENER H HZS6B1L F05 |
| D9 | ED-400171J | D ZENER H HZS6C2L F05 |
| D10 | ED-400171J | D ZENER H HZS6C2L F05 |
| D11 | ED-307572 | D SILICON H 1SS131 |
| D13 | ED-396063J | D ZENER H HZS7B1 |
| D14 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D15 | ED-307572 | D SILICON H 1SS131 |
| D16 | ED-307572 | D SILICON H 1SS131 |
| D17 | ED-307572 | D SILICON H 1SS131 |
| D18 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D19 | ED-307572 | D SILICON H 1SS131 |
| IB1 | EH-405239J | COMP R RGLD14T 223J |
| IB2 | EH-405240J | COMP R RGLE11X 472J |
| IC1 | EI-405232J | IC UPD75116CW FX2CDS-1-172 |
| IC2 | EI-390120J | IC CXA1082BS |
| IC3 | EI-390112J | IC CXA1081S |
| IC4 | EI-403497J | IC CXD1167Q |
| IC5 | EI-405231J | IC LC3664ASLL-12 |
| IC6 | EI-389264J | IC BA6209N |
| IC8 | EI-400756J | IC NJM4558L-B |
| IC9 | EI-405234J | IC S-8054ALR T05 |
| IC10 | EI-400756J | IC NJM4558L-B |
| IC11 | EI-400756J | IC NJM4558L-B |
| J4 | EJ-394490J | SOCKET OPTICAL GP1F32T |
| TR1 | ET-389807J | TR 2SB1009 Q,R |
| TR2 | ET-400218J | TR 2SC1740S R,S |
| TR3 | ET-400965J | TR 2SB1357 E,F T05 |
| TR4 | ET-400218J | TR 2SC1740S R,S |
| TR5 | ET-369248 | TR DTA114YS |
| TR6 | ET-373392 | TR DTC124XS |
| TR7 | ET-394555J | TR 2SA1515 Q,R |
| TR8 | ET-353899 | TR 2SA1317 S,T,U |
| TR9 | ET-360399 | TR DTC114TS |
| TR10 | ET-400218J | TR 2SC1740S R,S |
| TR11 | ET-354371 | TR DTC124ES |
| TR12 | ET-394917J | TR 2SD2005 Q,R T05 |
| TR13 | ET-394919J | TR 2SB1329 Q,R T05 |
| TR14 | ET-394919J | TR 2SB1329 Q,R T05 |
| TR15 | ET-394916J | TR 2SD2037 E,F T05 |
| TR16 | ET-396072J | TR 2SD2159 V,W |
| TR17 | ET-389808J | TR 2SB1425 E,U |
| TR18 | ET-389808J | TR 2SB1425 E,U |
| TR19 | ET-396072J | TR 2SD2159 V,W |
| TR20 | ET-389808J | TR 2SB1425 E,U |
| TR22 | ET-389808J | TR 2SB1425 E,U |
| TR23 | ET-400218J | TR 2SC1740S R,S |
| TR24 | ET-360399 | TR DTC114TS |
| TR25 | ET-360399 | TR DTC114TS |
| TR26 | ET-360399 | TR DTC114TS |
| TR27 | ET-360399 | TR DTC114TS |
| TR28 | ET-371075 | TR DTA124XS |
| TR29 | ET-371075 | TR DTA124XS |
| TR30 | ET-371075 | TR DTA124XS |
| TR31 | ET-354371 | TR DTC124ES |
| TR32 | ET-396072J | TR 2SD2159 V,W |
| TR33 | ET-389808J | TR 2SB1425 E,U |
| TR34 | ET-389808J | TR 2SB1425 E,U |
| TR35 | ET-396072J | TR 2SD2159 V,W |
| TR36 | ET-396072J | TR 2SD2159 V,W |
| TR37 | ET-389808J | TR 2SB1425 E,U |
| TR38 | ET-389808J | TR 2SB1425 E,U |
| TR39 | ET-400218J | TR 2SC1740S R,S |
| VR1 | EV-405242J | R S-FIX H T05 EVMF6S 0.30W 102 |
| VR2 | EV-390872J1 | R S-FIX H T05 RH0638C 0.1W 223 |
| VR3 | EV-390872J1 | R S-FIX H T05 RH0638C 0.1W 223 |
| VR4 | EV-390872J1 | R S-FIX H T05 RH0638C 0.1W 223 |
| VR5 | EV-390873J1 | R S-FIX H T05 RH0638C 0.1W 472 |
| X1 | EI-381139J | OSC X'TAL HC-49/U 16934.400KHZ |
| X2 | EI-390149J | OSC CE CST4.23MGW 4.230MHZ |

## 5. OPERATION P.C BOARD

| Ref.No. | Part No. | Description |
|---|---|---|
| D101 | ED-307572 | D SILICON H 1SS131 |
| D102 | ED-307572 | D SILICON H 1SS131 |
| D103 | ED-400175J | D ZENER H HZS9B1L F05 |
| D104 | ED-307572 | D SILICON H 1SS131 |
| D105 | ED-307572 | D SILICON H 1SS131 |
| D106 | ED-307572 | D SILICON H 1SS131 |
| D107 | ED-307572 | D SILICON H 1SS131 |
| D108 | ED-307572 | D SILICON H 1SS131 |
| D111 | ED-394416J | D LED SLV-31VT3F RED |
| D112 | ED-394416J | D LED SLV-31VT3F RED |
| D113 | ED-394416J | D LED SLV-31VT3F RED |
| D114 | ED-394416J | D LED SLV-31VT3F RED |
| IC101 | EI-405236J | IC UPD75268ACW FX2CD01-028 |
| IN101 | EM-401047J | IND FL FIP10EM7R CHARACTER |
| SW101 | ES-394427J | SW TACT SOR-133HS T05 |
| SW102 | ES-394427J | SW TACT SOR-133HS T05 |
| SW103 | ES-394427J | SW TACT SOR-133HS T05 |
| SW104 | ES-394427J | SW TACT SOR-133HS T05 |
| SW105 | ES-394427J | SW TACT SOR-133HS T05 |
| SW106 | ES-394427J | SW TACT SOR-133HS T05 |
| SW107 | ES-394427J | SW TACT SOR-133HS T05 |
| SW108 | ES-394427J | SW TACT SOR-133HS T05 |
| SW109 | ES-394427J | SW TACT SOR-133HS T05 |
| SW110 | ES-394427J | SW TACT SOR-133HS T05 |
| SW111 | ES-394427J | SW TACT SOR-133HS T05 |
| SW112 | ES-394427J | SW TACT SOR-133HS T05 |
| SW113 | ES-394427J | SW TACT SOR-133HS T05 |
| SW114 | ES-394427J | SW TACT SOR-133HS T05 |
| SW115 | ES-394427J | SW TACT SOR-133HS T05 |
| SW116 | ES-394427J | SW TACT SOR-133HS T05 |
| TR101 | ET-373392 | TR DTC124XS |
| TR102 | ET-373392 | TR DTC124XS |
| TR103 | ET-400218J | TR 2SC1740S R,S |
| TR104 | ET-400218J | TR 2SC1740S R,S |
| TR105 | ET-400218J | TR 2SC1740S R,S |
| TR106 | ET-400218J | TR 2SC1740S R,S |
| TR107 | ET-396486J | TR 2SC4038 Q,R T05 |

## FINAL ASSEMBLY BLOCK



## 6. FINAL ASSEMBLY BLOCK

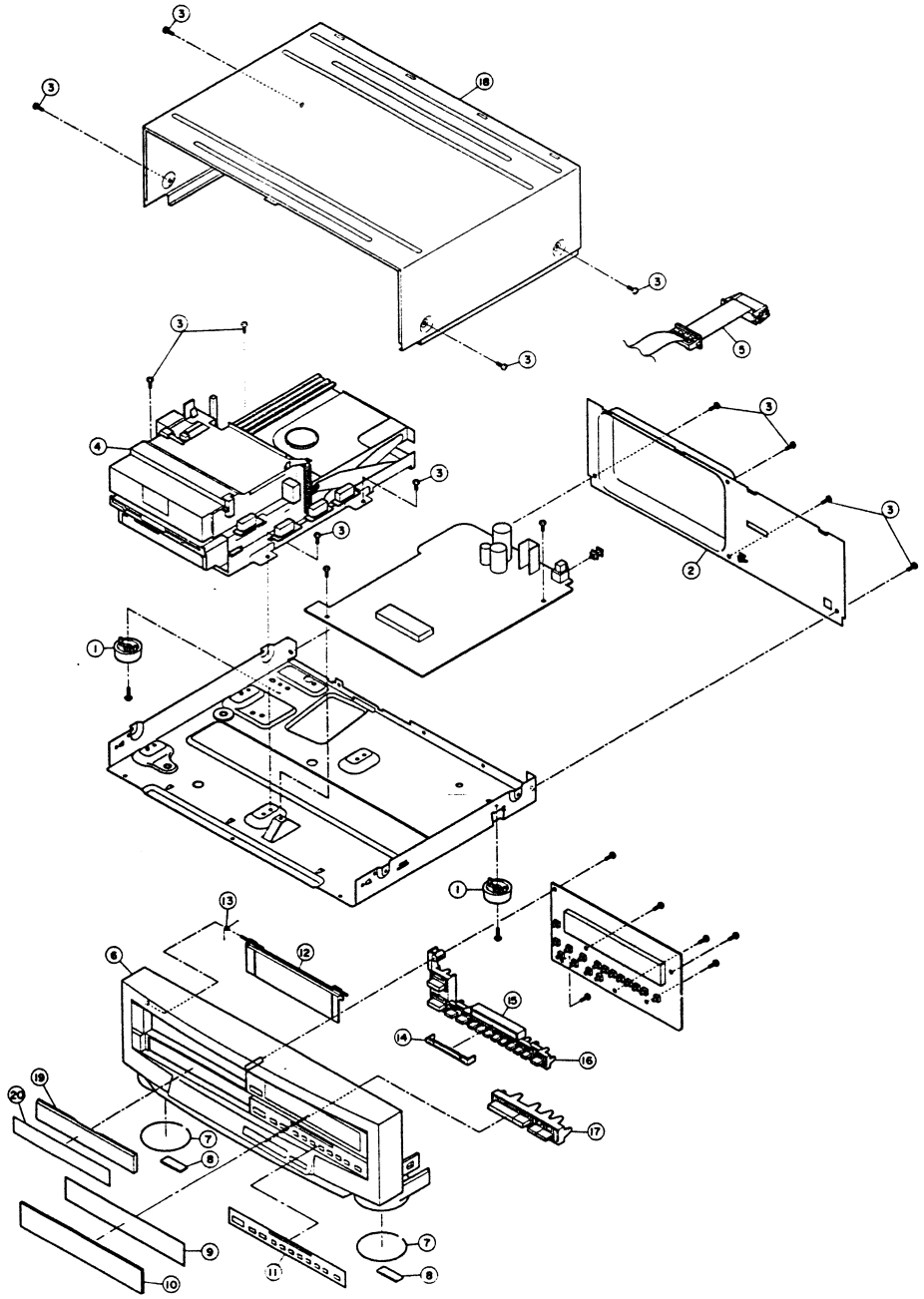
| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | SA-394127M1 | FOOT REAR |
| 2A | SP-405024M | PANEL REAR CD-M830M (U) [U] |
| 2B | SP-405025M | PANEL REAR CD-M830M (E) [E,V] |
| 3 | ZS-308846 | T2BR30X08STL BZN PROJECTION |
| 4 | BB-405228J | MECHA CD CHANGEER P2065 |
| 5 | EW-394419J | WIRE ASSY P2059 12P |
| 6 | SP-404946M | PANEL FRONT |
| 7 | SZ-401762M | RING FOOT |
| 8 | SA-394136M | CUSHION FOOT |
| 9 | SE-404950M | FILTER FLD |
| 10 | SE-404956M | WINDOW FLD |
| 11 | SE-404955M1 | WINDOW OPTICAL |
| 12 | SE-404953M | MASK MAGAZIN |
| 13 | ZG-404949M | SP TORSION MASK |
| 14 | SE-394119M | LENS OPTICAL |
| 15 | SE-394121M | REFLECTOR OPTICAL |
| 16 | SK-404957M | BUTTON NUMBER |
| 17 | SK-404952M | BUTTON OPERATION |
| 18 | SP-405822M | COVER UPPER CHG |
| 19 | SP-404951M | PANEL TRAY |
| 20 | SE-404947M | WINDOW TRAY |

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## 7. ACCESSARY

| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | AX-385911J | CORD P2187-60A |
| 2 | AX-405229J | CD MAGAZINE CASE CX-MT003E |

## FINAL ASSEMBLY BLOCK



## 6. FINAL ASSEMBLY BLOCK

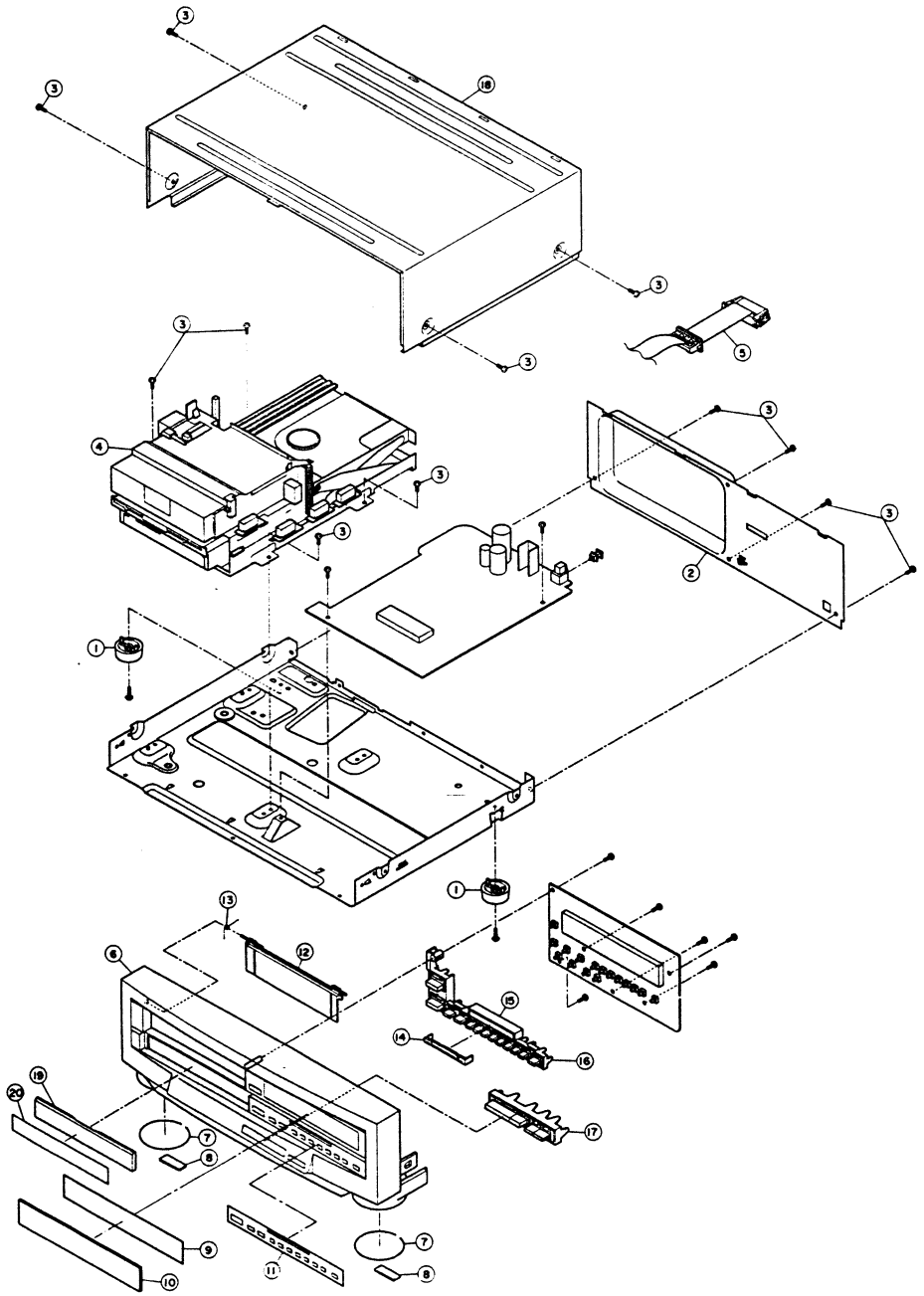
| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | SA-394127M1 | FOOT REAR |
| 2A | SP-405024M | PANEL REAR CD-M830M (U) [U] |
| 2B | SP-405025M | PANEL REAR CD-M830M (E) [E,V] |
| 3 | ZS-308846 | T2BR30X08STL BZN PROJECTION |
| 4 | BB-405228J | MECHA CD CHANGEER P2065 |
| 5 | EW-394419J | WIRE ASSY P2059 12P |
| 6 | SP-404946M | PANEL FRONT |
| 7 | SZ-401762M | RING FOOT |
| 8 | SA-394136M | CUSHION FOOT |
| 9 | SE-404950M | FILTER FLD |
| 10 | SE-404956M | WINDOW FLD |
| 11 | SE-404955M1 | WINDOW OPTICAL |
| 12 | SE-404953M | MASK MAGAZIN |
| 13 | ZG-404949M | SP TORSION MASK |
| 14 | SE-394119M | LENS OPTICAL |
| 15 | SE-394121M | REFLECTOR OPTICAL |
| 16 | SK-404957M | BUTTON NUMBER |
| 17 | SK-404952M | BUTTON OPERATION |
| 18 | SP-405822M | COVER UPPER CHG |
| 19 | SP-404951M | PANEL TRAY |
| 20 | SE-404947M | WINDOW TRAY |

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## 7. ACCESSARY

| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | AX-385911J | CORD P2187-60A |
| 2 | AX-405229J | CD MAGAZINE CASE CX-MT003E |

**FINAL ASSEMBLY BLOCK**



## 6. FINAL ASSEMBLY BLOCK

| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | SA-394127M1 | FOOT REAR |
| 2A | SP-405024M | PANEL REAR CD-M830M (U) [U] |
| 2B | SP-405025M | PANEL REAR CD-M830M (E) [E,V] |
| 3 | ZS-308846 | T2BR30X08STL BZN PROJECTION |
| 4 | BB-405228J | MECHA CD CHANGEER P2065 |
| 5 | EW-394419J | WIRE ASSY P2059 12P |
| 6 | SP-404946M | PANEL FRONT |
| 7 | SZ-401762M | RING FOOT |
| 8 | SA-394136M | CUSHION FOOT |
| 9 | SE-404950M | FILTER FLD |
| 10 | SE-404956M | WINDOW FLD |
| 11 | SE-404955M1 | WINDOW OPTICAL |
| 12 | SE-404953M | MASK MAGAZIN |
| 13 | ZG-404949M | SP TORSION MASK |
| 14 | SE-394119M | LENS OPTICAL |
| 15 | SE-394121M | REFLECTOR OPTICAL |
| 16 | SK-404957M | BUTTON NUMBER |
| 17 | SK-404952M | BUTTON OPERATION |
| 18 | SP-405822M | COVER UPPER CHG |
| 19 | SP-404951M | PANEL TRAY |
| 20 | SE-404947M | WINDOW TRAY |

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

## 7. ACCESSARY

| Ref.No. | Part No. | Description |
|---|---|---|
| 1 | AX-385911J | CORD P2187-60A |
| 2 | AX-405229J | CD MAGAZINE CASE CX-MT003E |

# ABBREVIATIONS (COMPACT DISC)

| ABBREVIATION | EXPLANATION | ABBREVIATION | EXPLANATION |
|---|---|---|---|
| A-D | Analog to Digital (Convertor) | Mb | Mega Bits |
| ADC | Analog to Digital (Convertor) | MDA | Motor Drive Amplifier |
| BCD | Binary Code Decimal | MFM | Modified Frequency Modulation |
| BPI | Bits per Inch | MM | Mono-stable Multivibrator |
| CD | Compact Disc | $M^2FM$ | Modified Modified Frequency Modulation |
| CIRC | Cross Interleaving & Reed Solomon Coding | MOD2 | Modulo 2 (Addition) |
| CLV | Constant Linear Velocity | MP | Microprocessor |
| CP | Clock Pulses | MSB | Most Significant Bit |
| CRCC | Cyclic Redundancy Check Codes | NA | Numerical Aperture |
| D Level | Decision Level | NRZ | Non Return to Zero |
| D-A | Digital to Analog (Convertor) | NRZ-1 | Non Return to Zero Inverted |
| DAC | Digital to Analog (Convertor) | P | Parity Data |
| DAD | Digital Audio Disc | PAM | Pulse Amplitude Modulation |
| DEM | Dynamic Element Matching | PCM | Pulse Code Modulation |
| DPD | Differential Phase Detection | PD | Phase Detector |
| DSV | Digital Sum Value | PE | Phase Encode |
| EFM | Eight to fourteen Modulation | PLL | Phase Locked Loop |
| EX-OR | EXclusive OR | PNM | Pulse Number Modulation |
| FCI | Flux Changes per Inch | PPM | Pulse Phase Modulation |
| FIR | Finite Impulse Response | PWM | Pulse Width Modulation |
| FP | Front Pulse | Q | Parity Data |
| FPG | Front Pulse Gate | R, $R_1$, $R_2$, etc. | Data for Right Channel |
| f | Frequency of Sampling | RAM | Random Access Memory |
| GF | Galois Field | RPG | Rear Pulse Gate |
| H & V (Parity) | Horizontal & Vertical | SCOOP | Self Coupled Optical Pick-up |
| IIR | Infinite Impulse Response | S & H | Sample & Hold |
| kb | Kilo Bits | S/N | Signal to Noise Ratio |
| L, $L_1$, $L_2$, etc. | Data for Left Channel | SSG | Standard Signal Generator |
| LPF | Low Pass Filter | SYSCON | SYStem CONtrol |
| LSB | Least Significant Bit | | |

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# AKAI

## MODEL CD-M830M

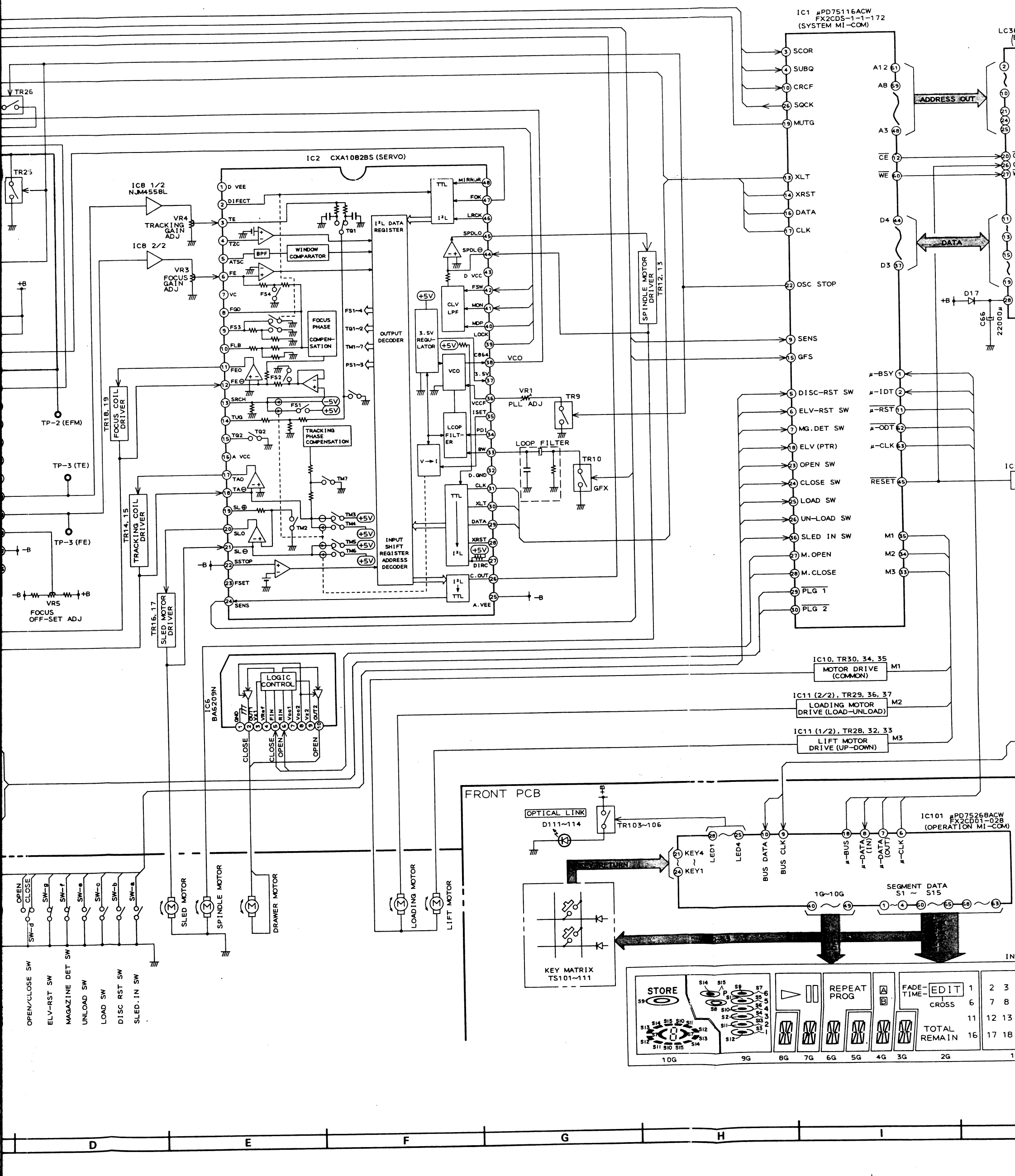
## SCHEMATIC DIAGRAMS AND PC BOARDS

TABLE OF CONTENTS


1. BLOCK DIAGRAM ..... 3
2. SCHEMATIC DIAGRAM ..... 4
3. MAIN PC BOARD ..... 5
4. FRONT PC BOARD ..... 6
5. INFORMATION OF ICs ..... 7


Use the following schematic diagrams and PC boards together with the provided service manual.

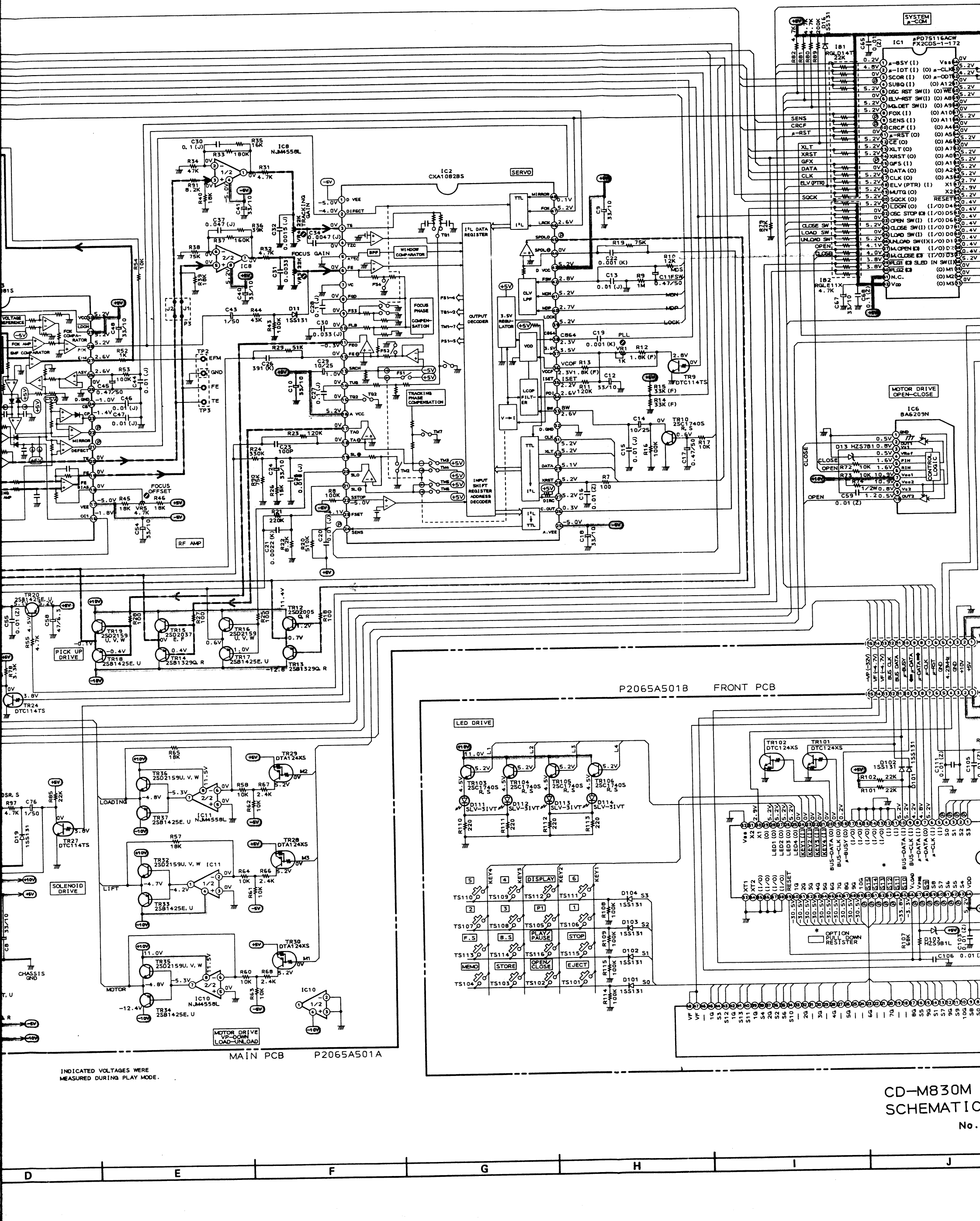
DIGITAL OUTPUT
J4
+B
IC4
CXD1167Q
(DIGITAL SIGNAL PROCCESSOR)
GFX
SQCK
RAM
DIGITAL OUT
SUBCODE SYNC DETECTOR
SUBCODE Q REGISTER
SUBCODE DEMODULATOR
EFM DEMODULATOR
ERROR DETECTER/ CORRECTOR
INTERPORATOR
DIGITAL FILTER
TRACKING CONTROL
CPU INTERFACE
X'TAL CIRCUIT TIMING GENERATOR
X1
16.9344MHz
SELECTOR
VCO CIRCUIT TIMING GENERATOR
FRAME SYNC/DETECTOR PROTECTOR/ INSERTER
23-bit SHIFT REGISTER
EFM-PLL
CLV SERVO CONTROL
SCOR
SUBQ
CRCF
MUTG
SENS
CNIN
XRST
DATA
XLT
CLK
VCO I
VCO O
LOCK
ASY
EFM
MDS
MDP
MON
FSW
TR11
TR26
TR25
TP-2 (EFM)
TP-3 (TE)
TP-3 (FE)
IC3 CXA1081S (RF AMP)
CURRENT REFERENCE
VOLTAGE REFERENCE
FOK COMPA-RATOR
FOK AMP
EMF COMPARATOR
APC PD AMP
APC LP AMP
RF1-V AMP (1)
RF1-V AMP (2)
F1-V AMP
E1-V AMP
CENTER VOLTAGE BUFFER
TRACKING ERROR AMP
MIRROR
DEFECT
FE BIAS
D. GND
PICK-UP BLK
TAOHS KP-1
VR2
E-F BALANCE ADJ
VR5
FOCUS OFF-SET ADJ
FOCUS COIL
TRACKING COIL
IC2 CXA1082BS
IC8 1/2
NJM4558L
IC8 2/2
VR4
TRACKING GAIN ADJ
VR3
FOCUS GAIN ADJ
D VEE
DIFECT
TE
TZC
ATSC
FE
FOD
FS4
FS3
FLB
FEO
FE⊖
FS2
SRCH
FS1
TUG
TQ2
A VCC
TAO
TA⊖
SL⊕
SLO
SL⊖
SSTOP
FSET
SENS
BPF
WINDOW COMPARATOR
FOCUS PHASE COMPEN-SATION
TRACKING PHASE COMPENSATION
TQ1
TM1~7
FS1~4
TQ1~2
PS1~3
TM7
TM2
TM3
TM4
TM5
TM6
TR18, 19
FOCUS COIL DRIVER
TR14, 15
TRACKING COIL DRIVER
TR16, 17
SLED MOTOR DRIVER
IC5
BA6209N
LOGIC CONTROL
CLOSE
OPEN
TO
AM-M830
AM-M630
OR
AX-M430
J3
AC 9V
D2~6
TR1, 2
+5V REG
TR7, 8
-5V REG
+10V
+5V
-5V
-10V
TR23
TR24
PLG 1
PLG 2
TR22
TR27
D114
TR3~6/TR38, 39
SOLENOID DRIVE
MAIN PCB
MECHA BLOCK
M.G.EJECT PLUNGER
DETECT PLATE SW
ELV (PTR)
OPEN/CLOSE SW
ELV-RST SW
MAGAZINE DET SW
UNLOAD SW
LOAD SW
DISC RST SW
SLED.IN SW
SW-d
SW-g
SW-f
SW-e
SW-c
SW-b
SW-a
SLED MOTOR
SPINDLE MOTOR
DRAWER MOTOR


IC1 μPD75116ACW
FX2CDS-1-1-172
(SYSTEM MI-COM)
SCOR
SUBQ
CRCF
SQCK
MUTG
XLT
XRST
DATA
CLK
OSC STOP
SENS
GFS
DISC-RST SW
ELV-RST SW
MG.DET SW
ELV (PTR)
OPEN SW
CLOSE SW
LOAD SW
UN-LOAD SW
SLED IN SW
M.OPEN
M.CLOSE
PLG 1
PLG 2
A12
A8
A3
ADDRESS OUT
CE
WE
D4
D3
DATA
μ-BSY
μ-IDT
μ-RST
μ-ODT
μ-CLK
RESET
M1
M2
M3
IC2 CXA1082BS (SERVO)
D VEE
DIFECT
TE
TZC
ATSC
FE
VC
FGD
FS3
FLB
FEO
FE⊖
SRCH
TUG
TG2
A VCC
TAO
TA⊖
SL⊕
SLO
SL⊖
SSTOP
FSET
SENS
MIRROR
FOK
LRCK
SPDLO
SPDL⊖
D VCC
FSW
MON
MDP
LOCK
CB64
3.5V
VCCF
ISET
PDI
BW
D.GND
CLK
XLT
DATA
XRST
DIRC
C.OUT
A.VEE
TTL
I²L
I²L DATA REGISTER
OUTPUT DECODER
INPUT SHIFT REGISTER ADDRESS DECODER
WINDOW COMPARATOR
BPF
FOCUS PHASE COMPENSATION
TRACKING PHASE COMPENSATION
FS1~4
TG1~2
TM1~7
PS1~3
FS1
FS2
FS4
TG1
TG2
TM2
TM3
TM4
TM5
TM6
TM7
+5V
-5V
-B
IC8 1/2
NJM4558L
VR4
TRACKING GAIN ADJ
IC8 2/2
VR3
FOCUS GAIN ADJ
CLV LPF
3.5V REGULATOR
VCO
VR1
PLL ADJ
TR9
LOOP FILTER
TR10
GFX
LCOP FILTER
V→I
SPINDLE MOTOR DRIVER TR12, 13
TR18, 19
FOCUS COIL DRIVER
TR14, 15
TRACKING COIL DRIVER
TR16, 17
SLED MOTOR DRIVER
TR26
TR25
TP-2 (EFM)
TP-3 (TE)
TP-3 (FE)
VR5
FOCUS OFF-SET ADJ
IC6
BA6209N
LOGIC CONTROL
GND
OUT1
VRef
FIN
RIN
Vcc1
Vcc2
VF2
OUT2
CLOSE
OPEN
IC10, TR30, 34, 35
MOTOR DRIVE (COMMON)
M1
IC11 (2/2), TR29, 36, 37
LOADING MOTOR DRIVE (LOAD-UNLOAD)
M2
IC11 (1/2), TR28, 32, 33
LIFT MOTOR DRIVE (UP-DOWN)
M3
SLED MOTOR
SPINDLE MOTOR
DRAWER MOTOR
LOADING MOTOR
LIFT MOTOR
OPEN/CLOSE SW
ELV-RST SW
MAGAZINE DET SW
UNLOAD SW
LOAD SW
DISC RST SW
SLED.IN SW
SW-d
SW-g
SW-f
SW-e
SW-c
SW-b
SW-a
FRONT PCB
OPTICAL LINK
D111~114
TR103~106
KEY RETURN
KEY MATRIX
TS101~111
IC101 μPD75268ACW
FX2CD01-028
(OPERATION MI-COM)
KEY4
KEY1
LED1
LED4
BUS DATA
BUS CLK
μ-BUS
μ-DATA (IN)
μ-DATA (OUT)
μ-CLK
1G~10G
SEGMENT DATA
S1 ~ S15
STORE
REPEAT PROG
FADE-TIME-
EDIT
CROSS
TOTAL REMAIN
10G
9G
8G
7G
6G
5G
4G
3G
2G

CD-M830M
BLOCK DIAGRAM
No. P206551M
A1

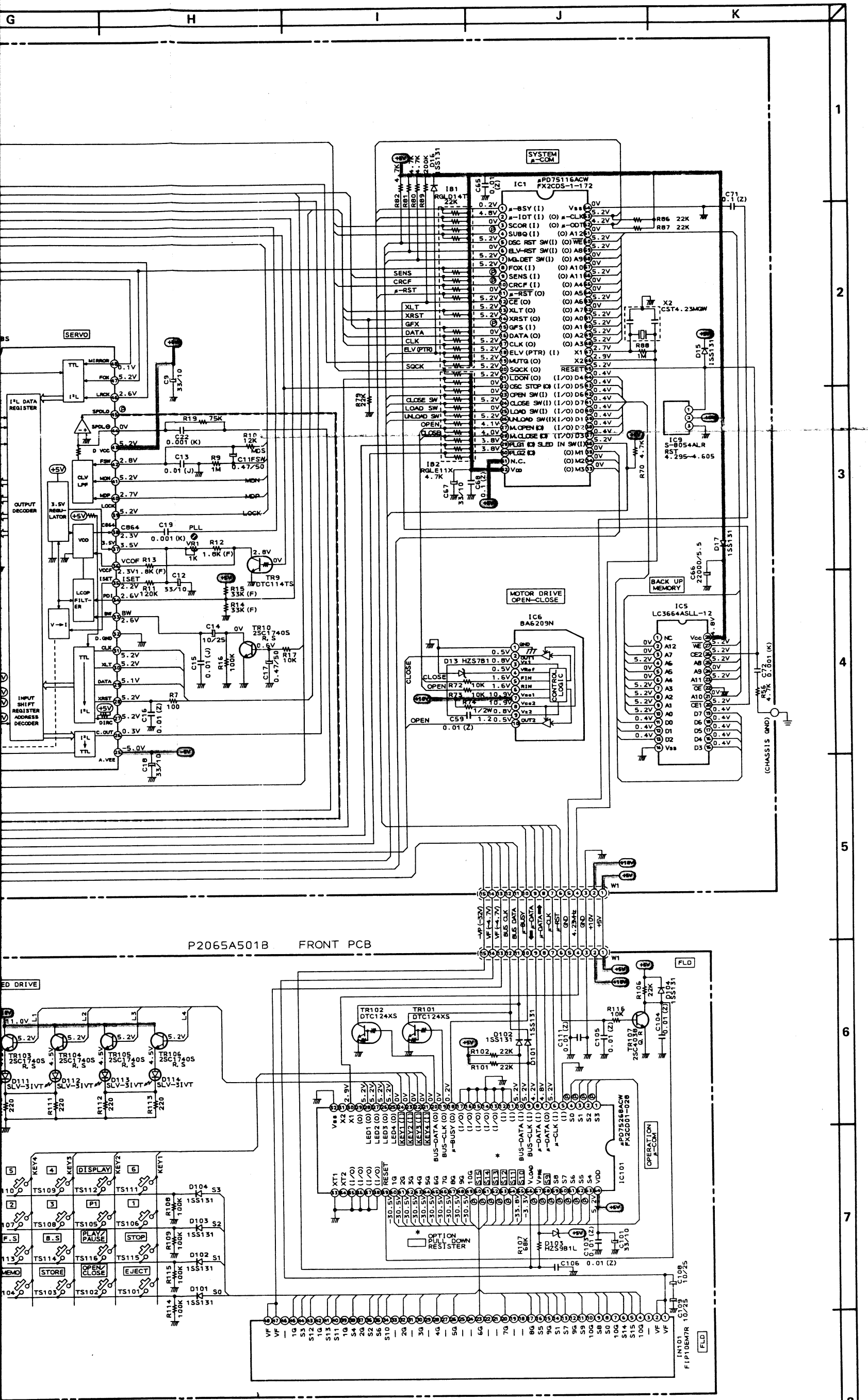
DSP
DIGITAL OUT (OPTICAL)
J4
IC4 CXD1167Q
X1 16.934400Hz HC-49/U
TP1
TR11 DTC124ES
IC3 CXA1081S
TAOHS KP-1
P1
P2
AUTO POWER CONTROL
SLED.M
SPINDLE.M
LIFT.M
LOADING .M
DRAWER.M
SW-a
SW-b
SW-c
SW-d
SW-e
SW-f
SW-g
W2
W3
W4
W5
T.S.SW
MG.L.SW
MG.EJC.
PD (+5V)
PD OUT
M.C.SW
ELV-RST SW
MECHA BLOCK
TRACKING ERROR AMP
FOCUS OFFSET
RF AMP
PICK UP DRIVE
SOLENOID DRIVE
IC8 NJM4558L
IC11 NJM4558L
IC10 NJM4558L
FOCUS GAIN
TRACKING GAIN
TP2
TP3
EFM
GND
FE
TE
J3
AM-M830
AM-M630
AX-M430
POWER
CHASSIS GND
MOTOR DRIVE VP-DOWN LOAD-UNLOAD
MAIN PCB P2065A501A
B (POWER SUPPLY) LINE
SIGNAL LINE
TRACKING SERVO LINE
FOCUS SERVO LINE
SPINDLE MOTOR DRIVE LINE
INDICATED VOLTAGES WERE MEASURED DURING PLAY MODE.

D | E | F | G | H | I | J




CD-M830M
SCHEMATIC
No.

D | E | F | G | H | I | J


SYSTEM μ-COM
IC1 μPD75116ACW FX2CDS-1-172
SERVO
MOTOR DRIVE OPEN-CLOSE
IC6 BA6209N
BACK UP MEMORY
IC5 LC3664ASLL-12
X2 CST4.23MGW
IC9 S-8054ALR RST 4.295~4.605
P2065A501B FRONT PCB
FLD
OPERATION μ-COM
IC101 μPD75268ACW FX2GD01-028
OPTION PULL DOWN RESISTER
CD-M830M
SCHEMATIC DIAGRAM
No. P206501M
A01

## PRINCIPAL PARTS LOCATION

### ICS

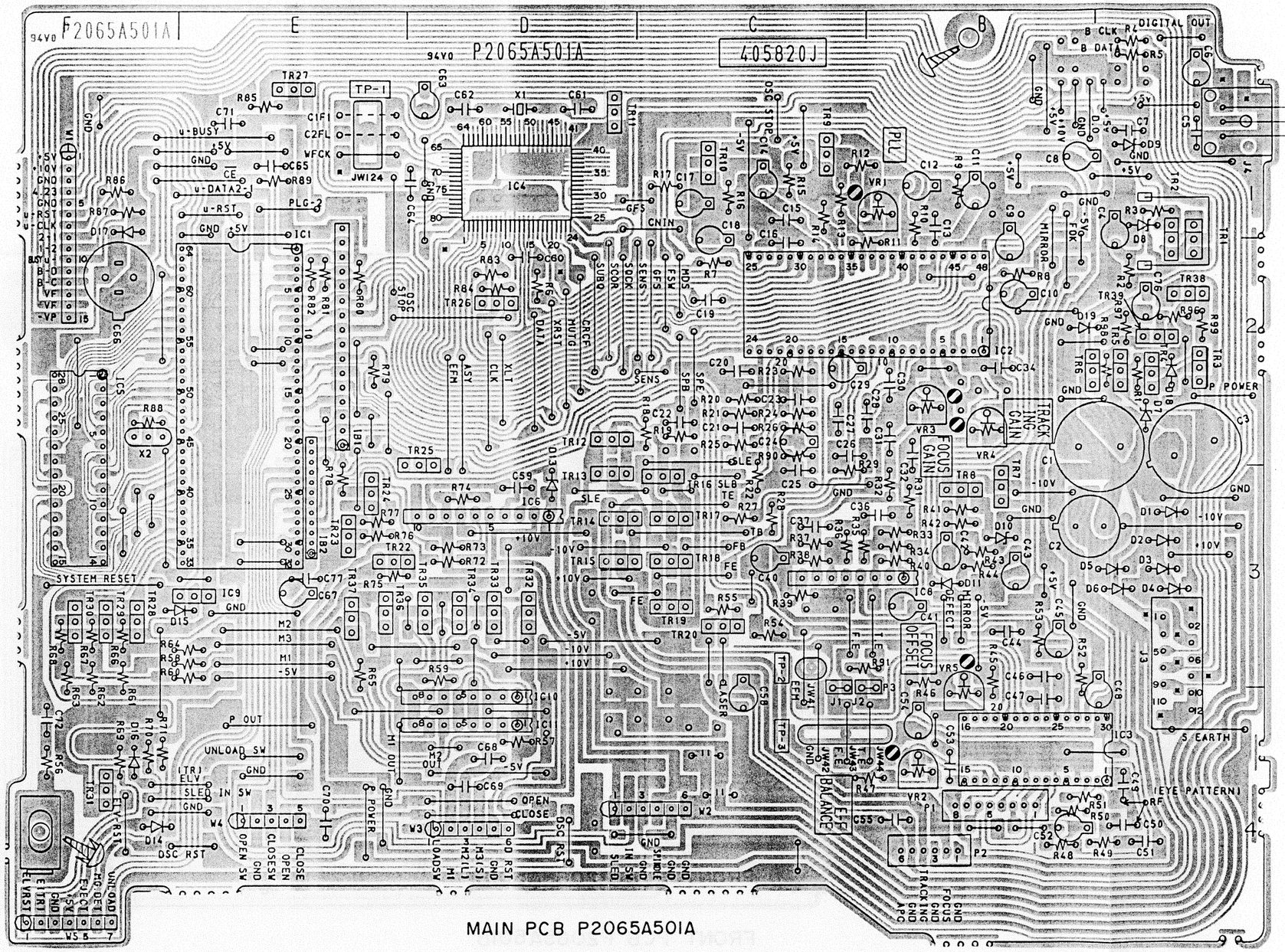
IC1 ..... E2,3
IC2 ..... B,C3
IC3 ..... B4
IC4 ..... D1
IC5 ..... F2,3
IC6 ..... D3
IC8 ..... B,C3
IC9 ..... E3
IC10 ..... D4
IC11 ..... D4

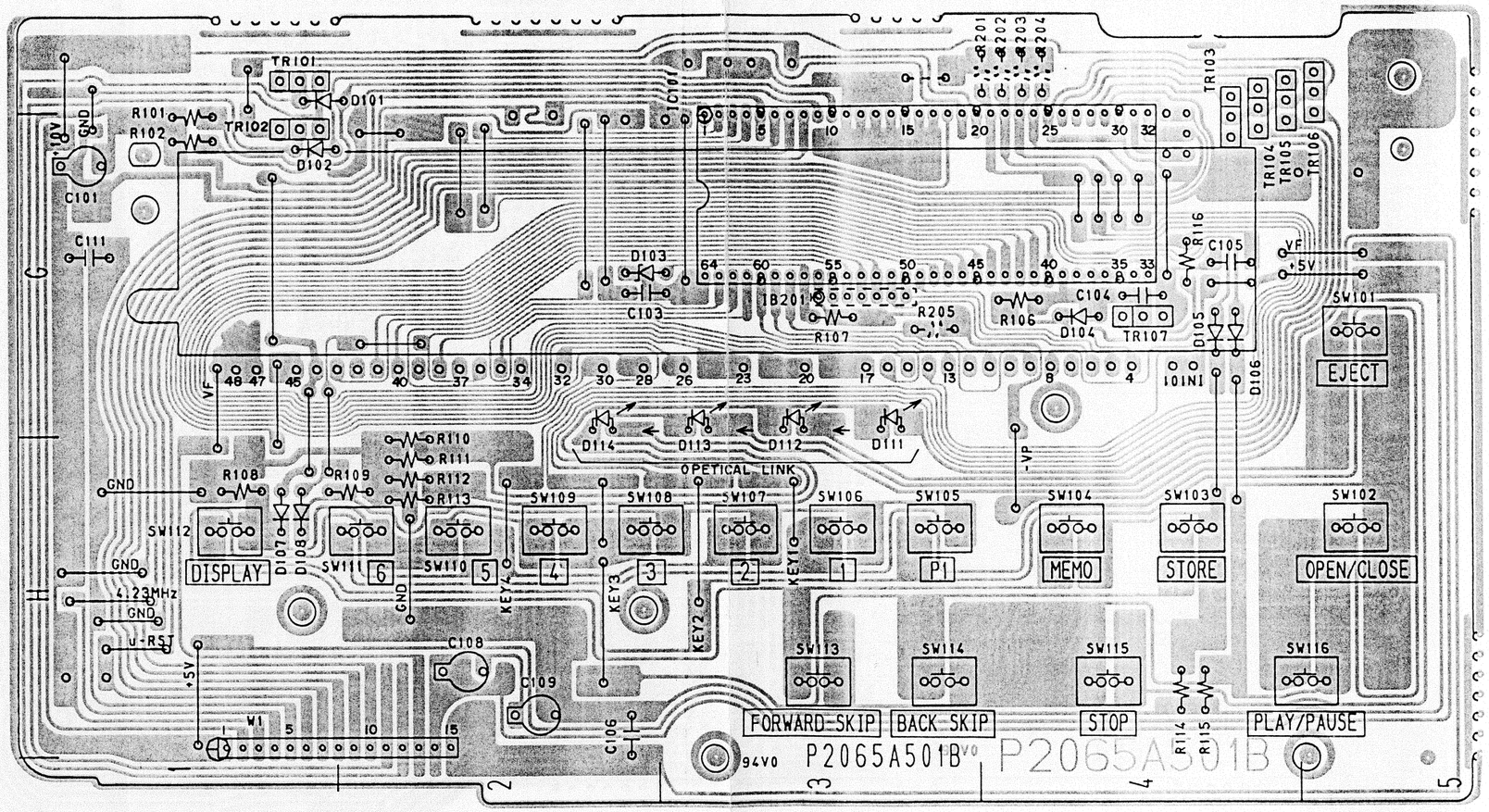
### CONNECTORS

P1 ..... B4
P2 ..... B4
J3 ..... A3
J4 ..... A1
W1 ..... F1,2
W2 ..... C,D4
W3 ..... D4
W4 ..... E4
W5 ..... F4

### TRANSISTORS

TR1 ..... A1,2
TR2 ..... A1,2
TR3 ..... A2
TR4 ..... A2
TR5 ..... A2
TR6 ..... B2
TR7 ..... B3
TR8 ..... B3
TR9 ..... C1
TR10 ..... C1
TR11 ..... D1
TR12 ..... D2
TR13 ..... D3
TR14 ..... D3
TR15 ..... D3
TR16 ..... C3
TR17 ..... C3
TR18 ..... C3
TR19 ..... C3
TR20 ..... C3
TR22 ..... E3
TR23 ..... E3
TR24 ..... E3
TR25 ..... D3
TR26 ..... D2
TR27 ..... E1
TR28 ..... F3
TR29 ..... F3
TR30 ..... F3
TR31 ..... F4
TR32 ..... D3
TR33 ..... D3
TR34 ..... D3
TR35 ..... D3
TR36 ..... E3
TR37 ..... E3
TR38 ..... A2
TR39 ..... A2






FRONT PCB P2065A501B

## CXD1167Q (DIGITAL SIGNAL PROCCESOR)

| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 1 | FSW | O | Spindle motor filter switching control |
| 2 | MON | O | Spindle motor ON /OFF control |
| 3 | MPD | O | Spindle motor speed and phase control |
| 4 | MDS | O | Spindle motor speed control |
| 5 | EFM | I | EFM signal input |
| 6 | ASY | O | EFM signai slice level control |
| 7 | LOCK | O | Slide motor over reach guard signal output |
| 8 | VCOO | O | VCO output ( f = 8.6436 MHz) |
| 9 | VCOI | I | VCO input |
| 10 | TEST | I | 0 V (GND) |
| 11 | PDO | O | Phase comp.output |
| 12 | VSS | — | GND (0 V) |
| 13 | CLK | I | Clock signal input from CPU |
| 14 | XLT | I | Lutch signal input from CPU |
| 15 | DATA | I | Serial data input from CPU |
| 16 | XRST | I | System reset input L: RESET |
| 17 | CNIN | I | Tracking pulse input |
| 18 | SENS | O | Output of CPU interface |
| 19 | MUTG | I | Mute control signal input |
| 20 | CRCF | O | CRC check data output of the subcode Q |
| 21 | EXCK | I | Not use (GND) |
| 22 | SBSO | O | Not use |
| 23 | SUBQ | O | Subcode Q output |
| 24 | SCOR | O | Subcode sync detection output |
| 25 | SQCK | I/O | Clock signal for subcode Q |
| 26 | SQEX | I | Select input of SQCK (+ 5V) |
| 27 | DOTX | O | Digital output |
| 28 | GFS | O | H: Frame sync lock L: Frame sync unlock |
| 29 | TEST | I | 0 V (GND) |
| 32 | TEST | I | |
| 33 | Vdd | — | + 5 V (Power supply) |
| 34 | TEST | I | 0 V (GND) |
| 50 | TEST | I | |
| 51 | C4M | O | Not use |
| 52 | Vss | — | GND |
| 53 | XTAI | I | X'tal OSC input (f = 16.9344 MHz) |
| 54 | XTAO | O | X'tal OSC output (f = 16.9344 MHz) |
| 55 | MD1 | I | Not use |
| 56 | MD2 | I | Mode select input 2 0 V (GND) |
| 57 | MD3 | I | Mode select input 3 + 5 V |
| 58 | SLOB | I | Code select input for audio data 0 V (GND) |
| 59 | PSSL | I | Mode select input for audio data 0 V (GND) |
| 60 | APTR | O | Not use |
| 61 | APTL | O | Not use |
| 62 | C1F1 | O | TP-1 C1F1 |
| 63 | C1F2 | O | Not use |
| 64 | C2F1 | O | Not use |
| 65 | C2F2 | O | TP-1 C2FL |
| 66 | C2FL | O | TP-1 WFCK |
| 67 | C2PO | O | Not use |
| 68 | RFCK | O | Not use |
| 69 | WFCK | O | Not use |
| 70 | PLCK | O | Not use |
| 71 | UGFS | O | Not use |
| 72 | GTOP | O | Not use |
| 73 | Vdd | — | + 5 V (Power supply) |
| 74 | RAOV | O | Not use |
| 75 | C4LR | O | Not use |
| 76 | BCLK | O | Bit clock for input data |
| 77 | BCLK | O | Not use |
| 78 | DATA | O | Serial data output |
| 79 | WDCK | O | Worde clock output |
| 80 | LRCK | O | L/R clock output |

| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 1 | μ-BSY | I | Busy signal input for indicator |
| 2 | μ-IDT | I | Serial data input for indicator |
| 3 | SCOR | I | Subcode sync input |
| 4 | SUBQ | I | Subcode serial data input |
| 5 | DSCRST | I | Disc reset position detect input |
| 6 | ELERST | I | Elevator reset position detect input |
| 7 | MGDET | I | Magazine insertion detect input |
| 8 | FOK | I | Focus lock detection input |
| 9 | SENS | I | Auto sequency and detection input |
| 10 | CRCF | I | Result input of CRC(Error) check |
| 11 | μ-RST | O | Reset control output for indicator |
| 12 | CE | O | Chip enable output (L : active) |
| 13 | XLT | O | Latch signal output |
| 14 | XRST | O | Reset signal output |
| 15 | GFS | I | PLL (Frame sync) condition detect signal input |
| 16 | DATA | O | Command data output (Serial data) |
| 17 | CLK | O | Clock signal output |
| 18 | ELV | I | Elevator pulse input |
| 19 | MUTG | O | Muting control output |
| 20 | SQLK | O | Reading clock output of subcode Q data |
| 21 | LDON | O | Laser diode ON/OFF control output |
| 22 | OSCSTP | O | Oscilator control output for DSP and Servo |
| 23 | OPEN | I | Tray open position detect input |
| 24 | CLOSE | I | Tray close position detect input |
| 25 | LOAD | I | Disc load position detect input |
| 26 | UNLOAD | I | Disc unload positiom detect input |
| 27 | M.OPEN | O | Tray open control output for drawer motor |
| 28 | M.CLOSE | O | Tray close control output for drawer motor |
| 29 | PLG-1 | O | Eject control output for Magazine |
| 30 | PLG-2 | O | Eject control output for Magazine |
| 31 | —— | — | Not used |
| 32 | Vdd | — | + 5 V (Power supply) |
| 33 | M3 | O | Motor logic control output for LIFT motor and LOADING motor |
| 34 | M2 | O | |
| 35 | M1 | O | |
| 36 | SLED IN | I | |
| 37 | D3 | I/O | RAM data |
| 38 | D2 | I/O | |
| 39 | D1 | I/O | |
| 40 | D0 | I/O | |
| 41 | D7 | I/O | |
| 42 | D6 | I/O | |
| 43 | D5 | I/O | |
| 44 | D4 | I/O | |
| 45 | RESET | I | Reset input |
| 46 | X2 | O | X'tal connection terminal |
| 47 | X1 | I | X'tal connection terminal |
| 48 | A3 | O | Address control output |
| 49 | A2 | O | |
| 50 | A1 | O | |
| 51 | A0 | O | |
| 52 | A7 | O | |
| 53 | A6 | O | |
| 54 | A5 | O | |
| 55 | A4 | O | |
| 56 | A11 | O | |
| 57 | A10 | O | |
| 58 | A9 | O | |
| 59 | A8 | O | |
| 60 | WE | O | Write enable control output |
| 61 | A12 | O | Address control output |
| 62 | μ-ODT | O | Serial data output for indicator |
| 63 | μ-CLK | O | Clock signal output |
| 64 | Vss | — | 0 V (GND) |

| | Loading.M | | Lift.M | | |
|---|---|---|---|---|---|
| | load | unload | up | down | stop |
| M1 | L | H | L | H | L |
| M2 | H | L | L | H | L |
| M3 | L | H | H | L | L |

## CXD1167Q (DIGITAL SIGNAL PROCCESOR)

| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 1 | FSW | O | Spindle motor filter switching control |
| 2 | MON | O | Spindle motor ON /OFF control |
| 3 | MPD | O | Spindle motor speed and phase control |
| 4 | MDS | O | Spindle motor speed control |
| 5 | EFM | I | EFM signal input |
| 6 | ASY | O | EFM signal slice level control |
| 7 | LOCK | O | Slide motor over reach guard signal output |
| 8 | VCOO | O | VCO output ( f = 8.6436 MHz) |
| 9 | VCOI | I | VCO input |
| 10 | TEST | I | 0 V (GND) |
| 11 | PDO | O | Phase comp.output |
| 12 | VSS | — | GND (0 V) |
| 13 | CLK | I | Clock signal input from CPU |
| 14 | XLT | I | Lutch signal input from CPU |
| 15 | DATA | I | Serial data input from CPU |
| 16 | XRST | I | System reset input L: RESET |
| 17 | CNIN | I | Tracking pulse input |
| 18 | SENS | O | Output of CPU interface |
| 19 | MUTG | I | Mute control signal input |
| 20 | CRCF | O | CRC check data output of the subcode Q |
| 21 | EXCK | I | Not use (GND) |
| 22 | SBSO | O | Not use |
| 23 | SUBQ | O | Subcode Q output |
| 24 | SCOR | O | Subcode sync detection output |
| 25 | SQCK | I/O | Clock signal for subcode Q |
| 26 | SQEX | I | Select input of SQCK (+ 5V) |
| 27 | DOTX | O | Digital output |
| 28 | GFS | O | H: Frame sync lock L: Frame sync unlock |
| 29 | TEST | I | 0 V (GND) |
| 32 | TEST | I | |
| 33 | Vdd | — | + 5 V (Power supply) |
| 34 | TEST | I | 0 V (GND) |
| 50 | TEST | I | |
| 51 | C4M | O | Not use |
| 52 | Vss | — | GND |
| 53 | XTAI | I | X'tal OSC input (f = 16.9344 MHz) |
| 54 | XTAO | O | X'tal OSC output (f = 16.9344 MHz) |
| 55 | MD1 | I | Not use |
| 56 | MD2 | I | Mode select input 2 0 V (GND) |
| 57 | MD3 | I | Mode select input 3 + 5 V |
| 58 | SLOB | I | Code select input for audio data 0 V (GND) |
| 59 | PSSL | I | Mode select input for audio data 0 V (GND) |
| 60 | APTR | O | Not use |
| 61 | APTL | O | Not use |
| 62 | C1F1 | O | TP-1 C1F1 |
| 63 | C1F2 | O | Not use |
| 64 | C2F1 | O | Not use |
| 65 | C2F2 | O | TP-1 C2FL |
| 66 | C2FL | O | TP-1 WFCK |
| 67 | C2PO | O | Not use |
| 68 | RFCK | O | Not use |
| 69 | WFCK | O | Not use |
| 70 | PLCK | O | Not use |
| 71 | UGFS | O | Not use |
| 72 | GTOP | O | Not use |
| 73 | Vdd | — | + 5 V (Power supply) |
| 74 | RAOV | O | Not use |
| 75 | C4LR | O | Not use |
| 76 | BCLK | O | Bit clock for input data |
| 77 | BCLK | O | Not use |
| 78 | DATA | O | Serial data output |
| 79 | WDCK | O | Worde clock output |
| 80 | LRCK | O | L/R clock output |

## µPD75116ACW (SYSTEM MI-COM)

| Pin No. | Symbol | I/O | Description |
|---|---|---|---|
| 1 | µ-BSY | I | Busy signal input for indicator |
| 2 | µ-IDT | I | Serial data input for indicator |
| 3 | SCOR | I | Subcode sync input |
| 4 | SUBQ | I | Subcode serial data input |
| 5 | DSCRST | I | Disc reset position detect input |
| 6 | ELERST | I | Elevator reset position detect input |
| 7 | MGDET | I | Magazine insertion detect input |
| 8 | FOK | I | Focus lock detection input |
| 9 | SENS | I | Auto sequency and detection input |
| 10 | CRCF | I | Result input of CRC(Error) check |
| 11 | µ-RST | O | Reset control output for indicator |
| 12 | CE | O | Chip enable output (L : active) |
| 13 | XLT | O | Latch signal output |
| 14 | XRST | O | Reset signal output |
| 15 | GFS | I | PLL (Frame sync) condition detect signal input |
| 16 | DATA | O | Command data output (Serial data) |
| 17 | CLK | O | Clock signal output |
| 18 | ELV | I | Elevator pulse input |
| 19 | MUTG | O | Muting control output |
| 20 | SQLK | O | Reading clock output of subcode Q data |
| 21 | LDON | O | Laser diode ON/OFF control output |
| 22 | OSCSTP | O | Oscilator control output for DSP and Servo |
| 23 | OPEN | I | Tray open position detect input |
| 24 | CLOSE | I | Tray close position detect input |
| 25 | LOAD | I | Disc load position detect input |
| 26 | UNLOAD | I | Disc unload positiom detect input |
| 27 | M.OPEN | O | Tray open control output for drawer motor |
| 28 | M.CLOSE | O | Tray close control output for drawer motor |
| 29 | PLG-1 | O | Eject control output for Magazine |
| 30 | PLG-2 | O | Eject control output for Magazine |
| 31 | —— | — | Not used |
| 32 | Vdd | — | + 5 V (Power supply) |
| 33 | M3 | O | Motor logic control output for LIFT motor and LOADING motor |
| 34 | M2 | O | |
| 35 | M1 | O | |
| 36 | SLED IN | I | |
| 37 | D3 | I/O | RAM data |
| 38 | D2 | I/O | |
| 39 | D1 | I/O | |
| 40 | D0 | I/O | |
| 41 | D7 | I/O | |
| 42 | D6 | I/O | |
| 43 | D5 | I/O | |
| 44 | D4 | I/O | |
| 45 | RESET | I | Reset input |
| 46 | X2 | O | X'tal connection terminal |
| 47 | X1 | I | X'tal connection terminal |
| 48 | A3 | O | Address control output |
| 49 | A2 | O | |
| 50 | A1 | O | |
| 51 | A0 | O | |
| 52 | A7 | O | |
| 53 | A6 | O | |
| 54 | A5 | O | |
| 55 | A4 | O | |
| 56 | A11 | O | |
| 57 | A10 | O | |
| 58 | A9 | O | |
| 59 | A8 | O | |
| 60 | WE | O | Write enable control output |
| 61 | A12 | O | Address control output |
| 62 | µ-ODT | O | Serial data output for indicator |
| 63 | µ-CLK | O | Clock signal output |
| 64 | Vss | — | 0 V (GND) |

| | Loading.M | | Lift.M | | |
|---|---|---|---|---|---|
| | load | unload | up | down | stop |
| M1 | L | H | L | H | L |
| M2 | H | L | L | H | L |
| M3 | L | H | H | L | L |